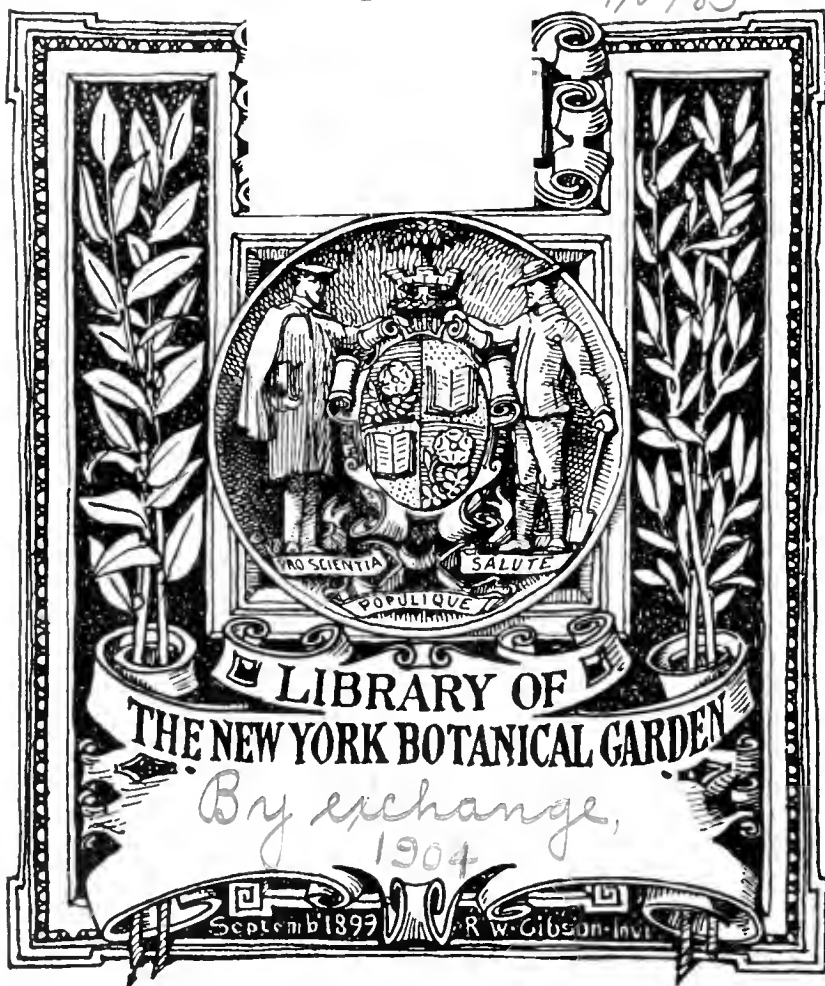


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TWENTY-NINTH ANNUAL REPORT

OF THE

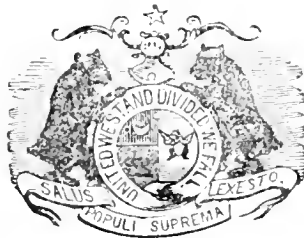
STATE HORTICULTURAL SOCIETY

OF THE

STATE OF MISSOURI.

REPORT OF THE TWENTY-NINTH ANNUAL MEETING HELD AT LEX-
INGTON, DECEMBER 7, 8 AND 9, 1886; ALSO, A REPORT OF THE
SEMI-ANNUAL MEETING HELD AT LOUISIANA JUNE 10
AND 11, 1886, AND "SECRETARY'S BUDGET,"
FOR THE YEAR 1886.

L. A. GOODMAN, Secretary, Westport, Mo.



JEFFERSON CITY, MO.:

TRIBUNE PRINTING COMPANY, STATE PRINTERS AND BINDERS.

1887.

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1887

CITY OF JEFFERSON, February 3, 1887.

To the Commissioners of Public Printing :

I require for the use of Horticultural Society 3,000 copies of report of State Horticultural Society, and which I desire printed as per accompanying sample, with two thousand bound copies.

LOWELL A. GOODMAN,

State Secretary.

Approved :

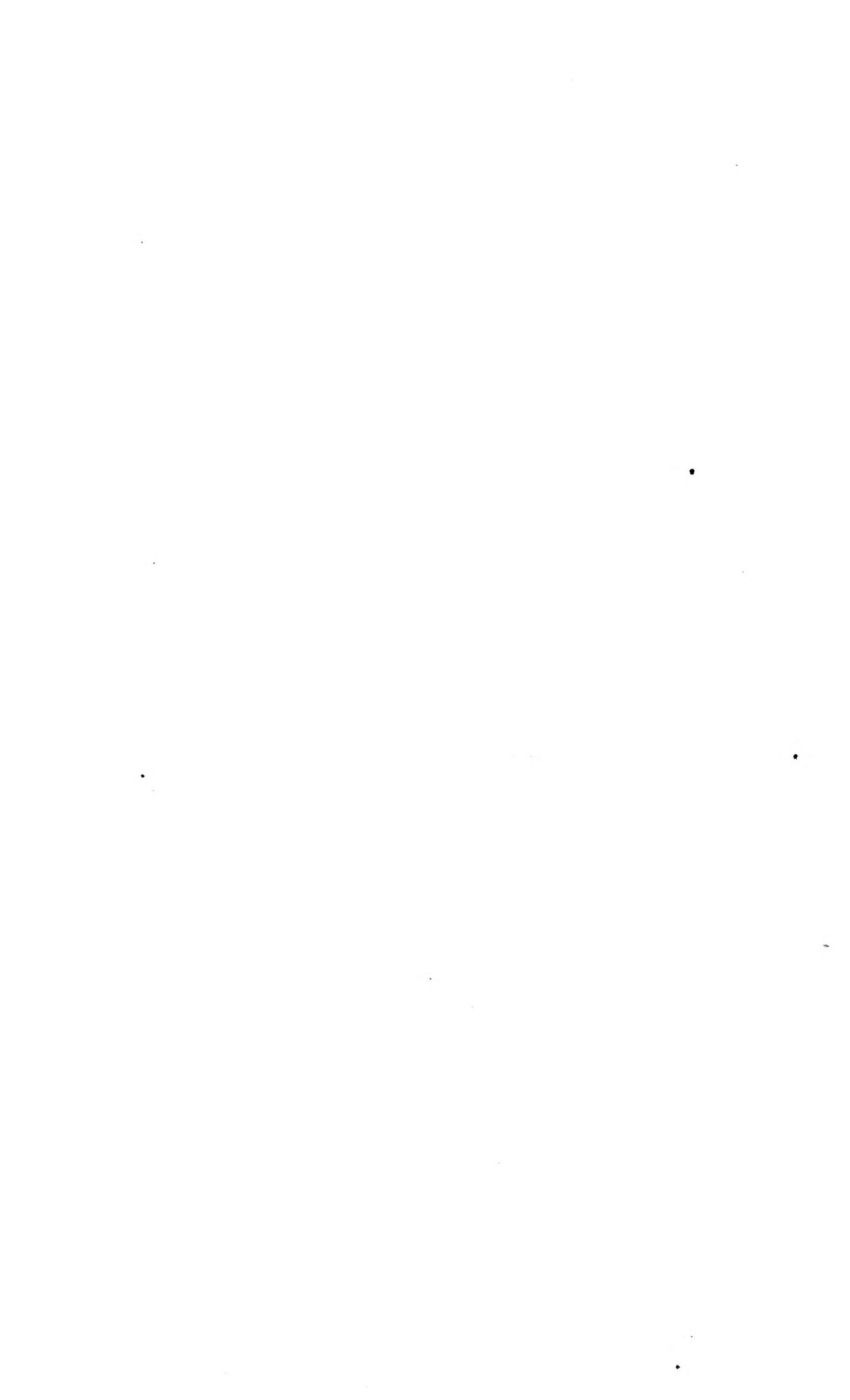
MICH'L K. McGRATH, Secretary of State.

JOHN WALKER, State Auditor.

ROB'T McCULLOCH, Register of Lands.



MARSHALL P. WILDER.



OFFICERS ELECTED FOR THE YEAR 1887.

President,

J. C. EVANS, Harlem.

Vice-President,

N. F. MURRAY, Elm Grove.

Secretary,

L. A. GOODMAN, Westport.

Treasurer,

D. S. HOLMAN, Springfield.

OFFICERS FOR THE YEAR 1886.

President,

J. C. EVANS, Harlem.

Vice-President,

J. A. DURKES, Weston.

Secretary,

L. A. GOODMAN, Westport.

Treasurer,

D. S. HOLMAN, Springfield.

LIST OF HONORARY MEMBERS.

George Hussman.....	Napa, Cal.
T. T. Lyon.....	Grand Haven, Mich.
C. W. Murtfeldt.....	Kirkwood, Mo.
Hon. N. J. Colman.....	St. Louis.

MISSOURI STATE HORTICULTURAL SOCIETY.

To His Excellency, JOHN S. MARMADUKE, Governor of the State of Missouri:

The following is a report of the work, and of the moneys expended by our society for the year 1886. All of which is respectfully submitted.

L. A. GOODMAN, Secretary.

STANDING COMMITTEES.

Orchards,

W. G. GANO, OLDEN; CHAS. PATTERSON, KIRKSVILLE; HENRY
SPEER, BUTLER.

Vineyards,

GEO. E. MEISSNER, BUSHBURG; JACOB ROMMEL, MORRISON; C.
TEUBNER, LEXINGTON.

Small Fruits,

S. MILLER, BLUFFTON; J. N. MENIFEE, OREGON; JACOB FAITH,
MONTEVALLO.

Stone Fruits,

W. G. HOPKINS, SPRINGFIELD; D. F. EMRY, CARTHAGE; JACOB
MADDINGER, ST. JOSEPH.

Vegetables,

PROF. L. R. TAFT, COLUMBIA; W. A. SMILEY, BOONVILLE; J. A.
DURKES, WESTON.

Flowers,

ROBT. S. BROWN, KANSAS CITY; HANS NIELSON, ST. JOSEPH;
MRS. WADE BURDEN, SPRINGFIELD.

Ornamentals,

Z. S. RAGAN, INDEPENDENCE; MRS. C. I. ROBARDS, BUTLER; R.
E. BAILEY, FULTON.

Entomology,

MISS M. E. MURTFELDT, KIRKWOOD; DR. A. GOSLIN, OREGON;
H. SHEPLEY, NEVADA.

Botany,

PROF. S. M. TRACY, COLUMBIA; G. C. BROADHEAD, PLEASANT
HILL; FRANK BUSH, INDEPENDENCE.

Nomenclature,

T. W. GAUNT, MARYVILLE; J. B. WILD, SARCOXIE; A. AMBROSE,
NEVADA.

New Fruits,

F. LIONBERGER, NEW FLORENCE; A. H. GILKESON, WARRENS-
BURG; W. P. STARK, LOUISIANA.

Ornithology,

CLARK IRVINE, OREGON; C. W. MURTFELDT, KIRKWOOD; W.
H. THOMAS, LAGRANGE.

Injurious Fungi,

B. T. GALLOWAY, COLUMBIA; PROF. W. TRELEASE, ST. LOUIS;

Packing and Marketing Fruits,

E. HOLLISTER, ST. LOUIS; C. C. BELL, BOONVILLE; C. THORP,
WESTON.

CONSTITUTION

OF THE

MISSOURI STATE HORTICULTURAL SOCIETY.

ARTICLE I. This association shall be known as the Missouri State Horticultural Society. Its object shall be the promotion of horticulture in all its branches.

ART. II. Any person may become a member of this society upon the payment of one dollar, and membership shall continue on the payment of one dollar annually. The payment of ten dollars at any one time shall constitute a person a life member, and honorary members may be elected at any regular meeting of the society. And any lady may become a member by giving her name to the Secretary.

ART. III. The officers of this society shall consist of a President, Vice-President, a Secretary and a Treasurer, who shall be elected by ballot at each regular meeting, and whose terms of office shall begin on the first day of June following their election.

ART. IV. The elective officers of the society shall constitute an Executive Committee, at any meeting of which a majority of the members shall have power to transact business. The other duties of the officers shall be such as usually pertain to the same officers in similar organizations.

ART. V. The regular meetings of this society shall be held annually on the first Tuesday of December, except when otherwise ordered by the Executive Committee. Special meetings of the society may be called by the Executive Committee, and meetings of the committee, by the President and Secretary.

ART. VI. As soon after each regular annual meeting as possible, the President shall appoint the following Standing Committees; and they shall be required to give a report in writing, under their respect-

ive heads, at the annual and semi-annual meetings of the society of what transpires during the year of interest to the society: Orchards, Vineyards, Stone Fruits, Small Fruits, Vegetables, Flowers, Ornamentals, Entomology, Ornithology, Botany, Nomenclature, New Fruits, Injurious Fungi, Packing and Marketing Fruits.

ART. VII. This constitution may be amended by a two-thirds vote of the members present at any regular meeting.

LIST OF MEMBERS AND CORRESPONDENTS GIVEN BY COUNTIES.

ADAIR COUNTY HORTICULTURAL SOCIETY.

(Meets second Saturday of each month.)

R. M. Brashear, President.....	Kirksville.
Charles Patterson, Vice-President.....	“
W. O. Patterson, Secretary.....	“
J. W. Gill, Treasurer.....	“
J. M. Kellogg.....	Bullion.
R. B. Frisbie.....	“
L. Bartholomew.....	Kirksville.
F. M. Harrington.....	“
C. B. Polley.....	“
F. S. Northrup.....	“
G. A. Giller.....	“
J. W. Gill.....	“
H. J. Bailey.....	“
Josiah Wright.....	“
Henry J. Otto.....	“
J. W. Parker.....	“
Jno. Patterson.....	“
D. G. Jacobs.....	“
Noah Motter.....	“
Thos. Dodson.....	“
J. S. Erwin.....	“
Jno. Chelley.....	“
J. P. Claypool.....	“
Jno. Rice.....	“
M. B. Foncannon.....	“
Wm. Morrow.....	Bullion.
King Collett.....	Kirksville.
G. W. Novinger.....	“
Wm. Spencer.....	“
Henry Eckert.....	“
J. Q. Johnson.....	Prairie Bird.
L. P. Carman.....	Kirksville.
R. J. Espey.....	“

I. H. Pidgeon.....	Kirksville.
S. C. Draper.....	“
Wm. Orr.....	“
Wesley Leech.....	“
I. B. Dodson.....	“
Jacob Carner.....	“
Abel Stuckey.....	Millard.
S. A. Adams.....	Sublette.
G. W. Morrow.....	Kirksville.
Jesse Hardin.....	“
J. S. Kellogg.....	“
N. J. Northrup.....	“
A. H. Burns.....	“
J. W. Waddill.....	Brashear.
E. H. Knapp.....	Kirksville.
Jacob Wait.....	Laplata,
Jacob Lantz.....	Millard.
D. A. Ely.....	Sublette.
W. E. Newton.....	Kirksville.
Wm. Foncannon.....	“
Columbus Rice.....	Sperry.

ANDREW.

Wm. Ent.....	Savannah.
Gtl. Segessemann.....	Amazonia.
J. Zimmerman.....	“
W. S. Kling.....	“
S. K. Falkner.....	Whiteville.
T. F. Miller.....	Avenue City.

ATCHISON.

Geo. Steck.....	Rockport.
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AUDRAIN.

B. F. Wild.....	Benton City.
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BARRY.

J. C. Davis.....	Cassville.
Isaac Stapleton.....	Seligman.

BATES COUNTY HORTICULTURAL SOCIETY.

(Meets third Saturday of each month.)

C. I. Robards, President.....	Butler.
J. B. Durand, First Vice-President.....	Prairie City.
A. C. Skinner, Second Vice-President.....	Butler.
Henry Speer, Secretary and Treasurer.....	“

O. I. Welton, Chaplain.....	Butler.
S. N. Fredrick.....	"
W. H. Holloway and wife.....	"
A. C. Skinner and wife.....	"
Wm. Wilson.....	"
M. Ryan.....	"
D. W. Thompson and wife.....	"
Squire Innis and wife.....	"
W. Kiter.....	"
J. F. Boyd.....	"
L. B. Allison.....	"
H. H. Flesher.....	"
D. J. McKiffen.....	"
J. J. McKee.....	"
A. H. Black	"
J. R. Hartman and wife.....	"
W. R. Thomas.....	"
Dan McConnell and wife.....	"
C. Cumming.....	"
Pleasant Hill.....	"
Caleb Richardson.....	"
James Smith.....	"
J. N. Mifener.....	"
T. J. Duncan.....	"
W. H. Kelley.....	"
Mrs. E. P. Henry.....	"
Mrs. C. I. Robards.....	"
Mrs. Henry Speer.....	"
Miss Ida Crume.....	"
Miss Annie Duncan.....	"
J. W. Brooks and wife.....	Pleasant Gap.
C. W. Brown.....	"
Wm. Hubbard.....	"
B. P. Boyd.....	"
H. B. Francis and wife.....	Mulberry.
J. W. Hall.....	"
D. R. Braden and wife.....	"
S. A. Rankin.....	"
S. F. McCutchen.....	"
J. L. Rankin and wife.....	"
S. W. Lorimer.....	"
Geo. F. Mitchell.....	"
John McKee.....	"
J. R. Clark.....	"
J. B. Durand and wife.....	Prairie City..
Fred Fix and daughters.....	"
W. H. Ballard.....	"
David C. Forbes.....	Vinton.
Thomas Irish and wife.....	Rich Hill.
Daniel Cresap and wife.....	"

Chas. C. Darnell.....	Rich Hill.
N. H. Wieman	"
J. S. Rogers.....	"
R. H. Railey.....	"
Ed. F. Henry and wife.....	"
A. Haworth and wife.....	"
Abner Wix.....	"
C. W. Wilder.....	Lone Oak.
Wm. Stephens and wife.....	"
Johnson Hill.....	Virginia.
A. E. Page.....	Reynard.
S. S. Williams.....	"
J. M. Williams.....	"
H. H. Taylor and wife.....	Hudson.
Joel Pratt and wife.....	"
Elias Leonard and wife.....	"
L. M. Rich.....	"
James Raybourne.....	"
T. D. Day.....	"
Clark Nix.....	"
G. W. Johnston and wife.....	Sprague.
Leroy Taylor and wife.....	"
C. E. Ferguson and wife.....	"
H. Wright and wife.....	"
L. Hibbs and wife.....	"
S. R. McCoun and wife.....	"
John Hornback and wife.....	"
J. P. Allen.....	"
J. B. Newberry and wife.....	Spruce.
J. M. Compton.....	"
Wm. White.....	"
John Kiouss.....	Papinville.
H. O. Haynes and wife.....	Rockville.
Moses Wineland.....	Altona.
Mrs. M. P. Beazell.....	Lacygne, Kas.

BARTON.

C. H. Fink & Son.. ..	Lamar.
M. M. Spear.....	"
S. G. Avery.....	"
C. H. Shepley.....	Nashville.
W. H. Thrapp.....	Milford.

BOONE.

Prof. and Mrs. S. M. Tracy.....	Columbia.
" " " J. W. Sanborn.....	"
" " " L. R. Taft.....	"
B. T. Galloway.....	"
Mrs. Marie Rodenmyer.....	Centralia.

BENTON.

F. Schwettman.....	Lincoln.
W. G. Mathews.....	Fairfield.

BOLLINGER.

David L. Phelps.....	Lutesville.
L. R. Johnson.....	Patton.

BUCHANAN.

Mr. and Mrs. Jacob Madinger.....	St. Joseph.
" " S. N. Cox.....	"
H. T. Kelsy.....	"
Mr. and Mrs. N. P. Sommer.....	"
J. W. Fleeman.....	"
Mr. and Mrs. Hans Nielson.....	"
L. Zaigler.....	"
W. Hafferlie.....	"
L. G. Munger.....	"
J. L. McAleer.....	"
Hon. Joseph Grubb.....	"
Chris. Diegel.....	"
J. C. Bender.....	"
W. Wiedman.....	"
H. Keene.....	"
John Hall, box 301.....	"
Karl Wiedman.....	"
Mr. and Mrs. J. Krischner.....	"
Gilbert Blake.....	"
Wm. Schott.....	"
N. P. Nelson.....	Wallace.

BUTLER.

J. T. Tubb.....	Poplar Bluff.
G. W. Register.....	"

CALDWELL.

Wm. McCray.....	Glassville.
Robert Pilrel.....	Mirabell.

CALLAWAY.

R. E. Baily.....	Fulton.
D. M. Dunlap.....	"
J. W. McIntyre.....	"
S. W. Holland.....	"

CAMDEN.

W. G. Brown.....Linn Creek.

CAPE GIRARDEAU.

G. G. Kimmel.....Cape Girardeau.

CARROLL.

W. O. Crouch.....Carrollton.

CASS.

G. C. Broadhead.....Pleasant Hill.

W. B. Mandy.....Harrisonville.

Mr. and Mrs. T. J. Schatz.....Lone Tree.

C. J. Hostetter.....East Lynne.

Thos. Armstrong.....Pleasant Hill.

CEDAR.

E. Liston.....Virgil City.

CHARITON.

G. W. Dewey.....Keytesville.

Hon. Lucius Salisbury... Salisbury.

CHRISTIAN.

J. K. Weaver.....Ozark.

CLAY.

Mr. and Mrs. J. C. Evans.....Harlem.

Dan Carpenter... Barry.

Dr. J. M. Atkins.....“

Mr. and Mrs. A. D. Barnes.....“

Mr. and Mrs. J. B. Johnson.....“

Mr. and Mrs. Z. Todd.....Harlem.

Sam'l Dooley.....Barry.

Chris. Schroeder.....“

D. T. Bronaugh.....“

Conrad Aul.....Smithville.

CLINTON.

Worley Shinn.....Lathrop.

W. L. Culver.....Grayson.

COLE.

Fred. Yost.....Jefferson City.

COOPER.

See Central Missouri Horticultural Society.

CRAWFORD.

H. C. Minter.....Keysville.

DEKALB.

E. A. Sylvester.....Osborne.

DADE.

Jesse Hiatt.....Lockwood.

DENT.

E. T. Butler.....Salem.

DAVIESS.

Woodruff Nursery.....Gallatin.

DALLAS.

S. A. Latimer.....Lang Lane.
J. W. Schantz.....Buffalo
M. L. Reynolds.....Buffalo.

FRANKLIN.

J. Bagby & SonNew Haven.
J. A. Trail“

GASCONADE.

F. Fleischer.....Gasconade City.
Rommel & Sobbe.....Morrison.
Stone Hill Wine CoHermann.
Henry Henze.....“

GENTRY.

N. C. Shultz.....King City.
Mrs. E. B. HavenBerlin.

GRUNDY.

E. B. Cooper	Trenton.
Jos. Sibbit.....	Tindall.
R. S. Wynne.....	Edinburg.
Thos. Luke.....	Trenton.
F. M. Cantwell.....	Galt.

GREENE COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

W. E. Sheffield, President.. ..	Springfield.
J. Kirchgraber, Vice-President	"
D. S. Holman, Secretary.....	"
R. W. Meacham, Treasurer.....	"
Mr. and Mrs. Henry Scholton	"
Mr. and Mrs. D. S. Holman	"
Mr. and Mrs. J. Kirchgraber.....	"
Mr. and Mrs. M. J. Ronndtree.....	"
Mr. and Mrs. E. H. Lair	"
Mr. and Mrs. W. H. Ritter.....	"
Mr. and Mrs. John Dailey	"
Mr. and Mrs. R. W. Meacham	"
Mr. and Mrs. Barnes	"
Mr. and Mrs. J. M. Doling	"
Mr. and Mrs. W. E. Sheffield.....	"
Mr. and Mrs. B. H. Park.....	"
Mr. and Mrs. R. G. Parker.....	"
Mr. and Mrs. Prof. E. M. Shepherd	"
Mr. and Mrs. E. R. Shipley	"
Mr. and Mrs. C. H. Russell.....	"
Mr. and Mrs. L. M. Hill.....	"
Mr. and Mrs. Jacob Bell.....	"
Mr. and Mrs. Geo. Anthony	"
Mr. and Mrs. G. F. Maitland.....	"
F. F. Fine.....	"
Jonathan Moore.....	"
Geo. Sawyer	"
Mr. Christ.....	"
Ed. Quinn.....	"
J. B. McCullah	"
W. C. Freeman	Brookline.
John Bradford.....	Springfield.
John Alexander	"
W. M. Hopkins	"
G. W. Hopkins	"
Dr. I. R. Lane.....	"
Eddie Holman.....	"

J. M. Kelley	Springfield.
T. J. Roundtree	"
John Pearce.....	"
R. S. Nash.....	"
M. L. McClure	"
S. H. Epley.....	"
Wm. Shultz	"
W. H. Vaughn.....	"
Josiah Zink	"
Louis Erb	"
G. F. Tippin.....	"
B. F. Fielder.....	"
Jas. Dumars.....	"
C. H. Foote.....	"
J. G. Puller.....	"
W. H. Guyon	"
Jos. Quinn	"
Fred. Mutz	"
C. B. McAfee	"
Mr. McBride	"
Mrs. Wade Burden	"
Mrs. Chas. Goffe.....	"
Mrs. Al. Demuth	"
Mrs. J. M. Adams.....	"
Mrs. Judge Griger	"
Mrs. Underwood.....	"
Mrs. A. I. Ross.....	"
Mrs. Jennie Prother	"
Mrs. Dr. Roberson.....	"
Mrs. Dr. Ross.....	"
Miss Emma Kirchgraber	"
Miss Nannie McPherson.....	"
Miss Rosa Holman.....	"
Miss Sudie Holman	"
Miss Lizzie Kroundtree.....	"
Miss Julia Swarr.....	"
Miss Lulu Meacham.....	"
Miss Mollie Hopkins.....	"
Miss Ella Hopkins.....	"

HARRISON.

Isaac M. Nell.....	Bolton.
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HENRY COUNTY HORTICULTURAL SOCIETY.

M. J. Condon, President.....	Clinton.
M. L. Bonham, Vice-President.....	"
J. M. Pretzinger, Secretary.....	"
W. A. Hastin, Treasurer.....	"
W. H. Roberts.....	"

HICKORY.

Chris. Gerber.....Wheatland.

HOLT COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each quarter.)

N. F. Murry, President.....Elm Grove.
 J. N. Meniffee, Vice-President.....Oregon.
 W. R. Laughlin, Secretary.....Elm Grove.
 C. Hoblitzell, Treasurer....."
 Linville Murry....."
 George Meyer.....Oregon.
 T. J. Krech....."
 Mr. and Mrs Maple....."
 D. Barbour....."
 John Bond....."
 John Callow....."
 S. Huiatt....."
 D. Huiatt....."
 William Brodbeck....."
 G. F. Linckhardt....."
 H. Holtgreve....."
 T. C. Dugan....."
 W. R. Vining....."
 Ed. Kennedy.....Forest City.
 Dan Shultz.....Oregon.
 S. B. Lukens.. .."
 Robert Montgomery....."
 Mrs. T. Smith....."
 Mr and Mrs. S. Blanchard....."
 T. B. Curtis....."
 J. M. Howard....."
 Henry Hughs....."
 Mr. and Mrs. Dr. A. Goslin....."
 Mr. and Mrs. Clark Irvine....."
 Mr. and Mrs. H. A. Dankers.....Corning.
 J. W. Davis.....New Point.
 Mr. and Mrs. N. F. Murray.....Oregon.
 Mr. and Mrs. J. N. Meniffee....."

MOUND CITY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

W. F. Drake, President Mound City.
 W. Herron, Vice-President....."
 J. M. Hasness, Secretary"
 M. Houston, Treasurer.. .."

D. B. Browning.....	Mound City.
C. M. Mosher.....	“ “
C. Schultz.	“ “

HOWARD.

R. T. Kingsbury.....	Estill.
A. S. Wolcott.....	Fayette.
A. McCray.....	“
Henry Schnell.....	Glasgow.

HOWELL COUNTY HORTICULTURAL SOCIETY.

(Meets second Saturday of each month.)

Mr. and Mrs. E. F. Hynes.....	West Plains.
Mr. and Mrs. P. P. Dobozy.....	“ “
Mr. and Mrs. Harber.....	“ “
Dr. H. T. Smith.....	“ “
H. M. Crouch.....	“ “
G. W. Burrell.....	Brandsville.
R. S. Hogan.....	Willow Springs.
W. E. Norman.....	“ “
Mr. and Mrs. A. Harrison.....	Olden.
G. L. Sessen.....	“
Mr. and Mrs. W. G. Gano.....	“
L. G. Atkins.....	West Plains.
S. P. Connor.....	Willow Springs.
W. R. Graham.....	West Plains.
J. D. Cole.....	“ “
A. S. Wright.....	“ “
A. G. Baseom.....	“ “
T. J. Shinkle.....	Burk.
J. L. Eblen.	West Plains.
T. J. Simpson.....	“ “
A. A. Bishop.....	“ “
E. McClintock.....	“ “
Hayden Bros.....	“ “
J. T. Williams.....	“ “
J. E. Frazer.....	Burnham.
Mr. Truax.....	West Plains.

JACKSON.

Mr. and Mrs. Z. S. Ragan.....	Independence.
G. Pfeffer.....	“
Mr. and Mrs. L. L. Seiler.....	“
Mr. and Mrs. L. M. Sea.....	“
Mr. and Mrs. J. T. Head.....	“
George J. Dod.....	Greenwood.

A. J. Baker.....	Westport.
Mr. and Mrs. C. E. Kern.....	“
S. E. Ward.....	“
Mr. and Mrs L. A. Goodman.....	“
J. B. Wornall.....	“
Mr. and Mrs. F. Eslinger.....	“
James White.....	“
Mr. and Mrs. J. A. Bayles.....	Lee's Summit.
M. Butterfield.....	“
G. Threlkald.....	Kansas City.
Mr. and Mrs. F. D. Atkins.....	“
Mr. and Mrs. William Kidwell.....	“
Mr. and Mrs. R. S. Brown.....	“
Mr. and Mrs. J. K. Cravens.....	“
Mr. and Mrs. J. H. Lewis.....	Blue Springs.
William Byers.....	Kansas City.

JASPER COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

Bennett Hall, President.....	Carthage.
Jonathan Ames, Vice-President.....	“
Z. T. Russell, Secretary and Treasurer	“
J. E. Twitchell.....	Carthage.
J. J. Williams.....	“
E. J. King.....	“
Judge Jno. Hornback.....	“
D. F. Emry.....	“
A. C. Carson.....	“
W. H. Smith.....	“
M. I. Parker.....	“
A. W. St. John.....	“
P. Jackson.....	“
J. B. Wild.....	Sarcoxie.
H. W. Wild.....	“
I. N. Johnson.....	Jasper.
J. K. Glassford.....	Carthage.
H. W. Maxwell.....	“
L. C. Amsden.....	“
C. A. Emry.....	“
D. L. Emry.....	“
Mrs. S. A. Livermore.....	“
J. W. Baird.....	“
D. Jones.....	“
W. J. Sieber.....	“
A. D. Tueker.....	“
P. Finn.....	“
John Wampler.....	“
W. C. Downs.....	“

Nicholas Siebert.....	Carthage.
Z. Freeman.....	Joplin.
F. A. Hazen.....	Dudenville.
G. W. Jones.....	Carthage.
V. Rockhold.....	“

JEFFERSON.

W. S. Jewett.....	Crystal City.
G. E. Meissner.....	Bushburg.

JOHNSON.

Prof. Geo. L. Osborne.....	Warrensburg.
A. H. Gilkerson.....	“
W. M. Mohler.....	“
J. J. Cockrell.....	“
M. G. Mullins.....	Centerview.
Mohler & Son.....	Cornelia.

KNOX.

Peter Dailing.....	Edina.
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LACLEDE.

M. W. Serl.....	Lebanon.
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LAFAYETTE COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

Dr. W. A. Gordon, President.....	Lexington.
U. G. Phetzing, Vice-President.....	“
C. Teubner, Secretary.....	“
G. M. Catron, Treasurer.....	“
H. S. Van Anglen.....	Waverly.
John Aull.....	Lexington.
Phil. Marshall.....	“
W. M. Poge.....	“
A. A. Lesener.....	“
Ethan Allen.....	“
Fred Neet.....	“
R. T. Russell.....	“
Zack W. Wright.....	“
James Aull.....	“
C. F. Lane.....	“
W. K. McChesney.....	“
Robt. H. Smith.....	“
Dr. J. B. Alexander.....	“
Robt. A. Hicklin.....	“

John S. Blackwell.....	Lexington.
Mrs. Florida Graddy.....	“
Mrs. M. V. Gordon.....	“
Mrs. Cerelia Thomas.....	“
Mrs. Jeannie F. Shultz.....	“
J. P. Coen, Jr.....	“
T. Green.....	“

LAWRENCE.

Alfred Johnson.....	Pierce City.
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LEWIS.

W. G. Downing.....	Canton.
E. Burrows.....	“
Frank Harlan.....	“
W. H. Thomas.....	LaGrange.
H. C. Kirschbaum.....	Tolona.
Lewis Schneider.....	LaGrange.

LINCOLN.

A. M. Shultz.....	Troy.
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LINN COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each quarter.)

Ralph Smith, President.....	Laclede.
Joseph Gamble, Vice-President.....	Brookfield.
G. W. Martin, Secretary.....	“
R. W. Davis, Treasurer.....	“
A. P. Crosby.....	“
James Hall.....	“
Danforth Chinney.....	“
W. D. Crandall.....	“
W. L. Laing.....	“
A. P. Wolverton.....	Meadville.
J. W. Turner.....	“
S. A. Field.....	“
L. D. Walbridge.....	“
A. P. Swan.....	Bucklin.
O. S. Fay.....	Boomer.

LIVINGSTON.

J. W. Green.....	Chillicothe.
H. V. Lewis.....	Bedford.

McDONALD.

S. G. Welborn.....Pineville.

MACON.

Green Bros.....Macon City.
J. M. Randall.....Callao.

MARIES.

D. W. Tainter.....Vienna.

MARION.

Wray Brown.....Hannibal.
W. S. Hallock“

MERCER.

R. J. Lewis.....Princeton.
J. A. Kennedy.....Ravenna.

MILLER.

N. J. ShepherdEldon.
J. N. Babcock.....Aurora Springs.

MISSISSIPPI.

W. T. Phoenix.....Charleston.

MONROE.

J. D. Hawkins.....Paris.
W. E. Flanders.....“
Wm. Vincent.....“

MONITEAU.

R. A. Snorgrass.....Tipton.

MONTGOMERY COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

R. H. Mansfield, President.....Montgomery City.
W. Loane, Vice-president.....New Florence.
F. Lionberger, Secretary.....“
F. Gutmann, Treasurer.....“

J. S. Drummond.....	New Florence.
D. P. Taylor.....	"
Ch. Laney.....	"
Fred Utz.....	"
J. S. Chapin.....	Montgomery City.
J. Foreman.....	" "
Oliver Loane	New Florence.
Geo. H. Logan	"
R. F. Lytle.....	"
Thos. Worley.....	"
Karl Smalzried.....	"
John Coffmann	High Hill.
Wilson Garrit.....	New Florence.
J. A. Trail	New Haven.
Hermann Willi	Montgomery City.
W. C. Price.....	Jonesburg.
Geo. W. Otto.....	New Melle.
John Jeffers.....	New Florence.
Henry Kohrmann, Jr.	Americus.
Christ. Grabenstein.....	New Florence.
Ed. Loane.....	Mineola.
Mrs. R. H. Mansfield.....	New Florence.
Mrs. John Jeffers.....	"
Mrs. F. Lionberger.....	"
Mrs. John Coffman.....	High Hill.
Mrs. P. Gill.....	New Florence.
Mrs. J. A. Trail.....	New Haven.
Miss E. J. McMahan.....	Americus.
Miss Ella Lytle.....	New Florence.
Miss Bertha Grabenstein	"
Miss Carolina Utz.....	"
Miss Frederika Gutmann.....	"
Miss Carolina Gutmann.....	"
Miss Minnie Slocker.....	"

HONORARY MEMBERS.

Judge S. Miller.....	Bluffton.
J. J. Gentry.....	Big Spring.

MORGAN.

Caleb Gunn.....	Versailles.
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NEW MADRID.

C. C. Thomas.....	Pt. Pleasant.
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NEWTON.

H. Jaeger.....	Ncosho.
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NODAWAY.

T. W. Gaunt.....	Maryville.
J. I. Hill.....	“

OREGON.

Ben Gunn.....	Alton.
S. W. Gilbert.....	Thayer.

OSAGE.

Christ. Heyer.....	Byron.
Jesse Moore.....	Linn.

OZARK.

Wm. Mahan.....	Almartha.
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PETTIS.

Mrs. Nellie MeVey.....	Sedalia.
Mrs. G. E. Dugan.....	“
J. H. Monsese.....	Beaman.
Phil. Pfeiffer.....	Sedalia.
J. Laney.....	Green Ridge.
Ed. Brown.....	Sedalia.
G. H. Shepard.....	LaMonte.
F. A. Sampson.....	Sedalia.

PLATTE.

J. A. Baldwin.....	Parkville.
D. C. Knighton.....	“
Mr. and Mrs. J. A. Durkes.....	Weston.
Mr. and Mrs. C. Thorp.....	“
Mr. and Mrs. J. J. Blakely.....	Platte City.
D. S. Johnson.....	Parkville.
W. R. Keller.....	Weston.
F. Hollied.....	“
J. P. Reichard.....	“

PIKE.

Rev. Mr. and Mrs. E. D. Pearson.....	Louisiana.
Mrs. W. E. Jackson.....	“
S. C. Hassler.....	“
J. R. Fry.....	“
Stark & Bros.....	“
T. J. McDonnald.....	Clarksville.

PUTNAM.

J. T. Scott	St. John.
J. McAnally	Mendota.

RALLS.

R. Dalton	Saverton.
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RAY.

S. B. Beal	Vibbard.
Alex. Maitland	Richmond.

RIPLEY.

J. G. Hancock	Doniphan.
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ST. CHARLES.

Chas. Golterman	Foristelle
C. T. Mallinckrodt	St. Charles.

ST. CLAIR.

Wm. Hook	Lowry City.
Mr. & Mrs. G. S. Allison	Johnson City.

ST. LOUIS.

P. M. Keily	St. Louis.
E. Hollister	"
Miss Mary E. Murtfeldt	Kirkwood.
Isidor Bush	St. Louis.
Levi Chubbock	"
Geo. H. Gill	Kirkwood.
S. M. Bayles	St. Louis.
Robt. Brent	"
G. B. Bowes	Afton.
Adolph Mail	"

SALINE.

J. T. Stewart	Blackburn.
Wm. Folck	Marshall.
C. M. Williams	Slater.

SCHUYLER.

G. W. Morton	Glennwood.
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SHANNON.

Jas. McKinney.....Eminence.
N. Vandelft “

SHELBY.

Jas. Hanley.....Shelbina.
H. G. Bruce..... “

STODDARD.

Jesse Brown.....Lakeville.

TANEY.

M. J. Smith.....Brown Branch.

TEXAS.

J. C. White.....Houston.

VERNON COUNTY HORTICULTURAL SOCIETY.

(Meets first Saturday of each month.)

A. Ambrose, President.....Nevada.
H. Fuller, Vice-President..... “
H. Shepley, Recording Secretary “
E. R. Mererord, Corresponding Secretary.....Schell City.
D. W. Graves, Treasurer.....Nevada.
W. ScottMontevallo.
Jacob Faith..... “
F. H. King..... “
H. B. Cresap.....Schell City.
A. Ingraham.....Nevada.
J. Q. Thompson..Walker.
Benedick Bros.....Enoch.
J. H. Logan & Sons.....Nevada.
H. M. Crouse..... “
Wesley Wilcox “
J. S. Hatten.....Sheldon.
J. W. Morton.....Nevada.
Pat Drummond..... “
J. W. Plumer.....Little Osage.

WARREN.

J. E. Yocum.....Warrenton.
Polster Bros.....Wright City.

WASHINGTON.

Phil Rush Mineral Point.

WAYNE.

Henry Griffing..... Piedmont.

WEBSTER.

Geo. Lewis..... Northview.

E. Bazley..... Seymore.

WRIGHT.

A. D. Hanks..... Mansfield.

S. W. Anderson..... Mt. Grove.

W. N. Smith..... Cedar Gap.

J. E. Elliott “

MISSOURI VALLEY HORTICULTURAL SOCIETY, KANSAS CITY, MO.

(Meets third Saturday of each quarter.)

President, W. G. Gano..... Parkville, Mo.

Vice-President, L. A. Goodman..... Westport, Mo.

Secretary, F. Holsinger..... Rosedale, Kas.

Treasurer, G. F. Espenlaub..... “

Mr. and Mrs. F. Holsinger..... “

Mr. and Mrs. G. F. Espenlaub..... “

Prof. G. E. Rose..... “

Mr. and Mrs. S. S. Ely..... “

Mr. and Mrs. S. S. Hogue..... Westport, Mo.

Mr. and Mrs. J. C. Dickinson..... “

Mr. and Mrs. L. A. Goodman..... “

Mr. and Mrs. J. C. Evans..... Harlem, Mo.

Mr. and Mrs. Z. Todd..... “

I. Orwick..... “

C. Shroeder..... “

J. F. Howell..... “

Mr. and Mrs. C. E. Kern..... Kansas City, Mo.

Mr. and Mrs. I. D. Gregg “

Mr. and Mrs. W. A. Gosnell..... “

Mr. and Mrs. J. K. Cravens..... “

Mr. and Mrs. Wm. Kidwell..... “

H. Kretchmer “

S. C. Palmer..... “

Jesse Ray..... “

J. C. Blair..... “

M. Butterfield..... Lees Summit, Mo.

Dan Carpenter.....	Barry, Mo.
Mr. and Mrs. W. G. Gano.....	Parkville, Mo.
Mr. and Mrs. Z. S. Ragan.....	Independence, Mo.
Mr. and Mrs. J. A. Bayles.....	Lees Summit, Mo.
Williamson.....	Wyandott, Kas.
T. L. Hogue.....	Glenn, P. O., Kas.
Mr. and Mrs. J. A. Durkes.....	Weston, Mo.
Mr. and Mrs. Wm. Lewis.....	Kansas City, Mo.
A. J. Threlkald	"
Mr. and Mrs. C. B. Warren.....	"
E. Lindsey.....	Westport, Mo.
Mr. and Mrs. Harvey Hughes.....	Rosedale, Kas.

CENTRAL MISSOURI FRUIT-GROWERS ASSOCIATION, BOONVILLE,
COOPER COUNTY, MO.

(Meets first Saturday of each quarter.)

President, H. M. Myers.....	Boonville.
First Vice-President, R. T. Kingsbury.....	Estelle.
Second Vice-President, W. P. Tompkins.....	Boonville.
Secretary, C. C. Bell.....	"
Treasurer, Fred. J. Boller.....	"
John Viertel.....	"
C. J. Fiddler.....	"
Henry Dimple.....	"
H. Roberts.....	"
C. J. Ingersoll.....	"
O. Carville.....	"
L. Gieger, Sr.....	"
L. Gieger, Jr.....	"
H. Wooldridge.....	"
Joe Glahn.....	"
J. E. Elliott.....	"
Will. Givens.....	"
John Neef.....	"
Frank Neef.....	"
L. Smith.....	"
A. Walter.....	"
W. A. Smiley.....	"

FOREIGN MEMBERS.

P. Underwood.....	N. Lawrence, Kas.
E. J. Holman.....	Leavenworth Kas.
Dr. J. Staymen.....	"
F. Wellhouse.....	Fairmount, Kas.
E. F. Stephens.....	Crete, Neb.
G. S. Downend.....	Sibley, Iowa.
E. C. Robinson.....	Portland, Maine.
Thos. Fargher.....	La Porte, Ind.

E. Taylor.....	Edwardsville, Kas.
H. M. Hoffman.....	Leavenworth, Kas.
J. W. Preston.....	Blue Mound, Kas.
Perry Nixon.....	Cherryvale, Kas.
A. H. Griesa.....	Lawrence, Kas.
Sam'l Grondyke.....	Eugene, Ind.
D. J. Purdy.....	Mason City, Iowa.
Nat. Stephens.....	Forney, Texas.
J. L. Simpson.....	Tongonoxie, Kas.
J. A. Sloan.....	Wakefield, Kas.
D. M. Swaar.....	Lancaster, Pa.
L. A. Garrett.....	Humboldt, Kas.
Erb & Reid.....	Memphis, Tenn.
G. C. Davis.....	Bentonville, Ark.
Ben Davis.....	"
C. J. Warren.....	Black Rock, Ark.

MISSOURI STATE HORTICULTURAL SOCIETY.

SEMI-ANNUAL MEETING HELD AT LOUSIANA, MISSOURI, JUNE 8 AND 9,
1886, IN THE CUMBERLAND PRESBYTERIAN CHURCH.

According to the programme the members began to arrive in the forenoon, and the fruits and flowers were arranged. Many new acquaintances were made and many old friends were met.

After the arranging of fruits and the appointment of delegates to their homes, the president, J. C. Evans appointed the following committees. They were requested to do their work at any time they found leisure, and report when ready.

FINANCE COMMITTEE.

J. A. Durkes.....	Weston.
Jacob Madinger.....	St. Joseph.
W. P. Stark.....	Louisiana.

NEEDED LEGISLATION.

Z. S. Ragan.....	Independence.
L. A. Goodman.....	Westport.

The President was added by motion.

FRUITS.

F. Lionberger.....	New Florence.
Wm. Kauffman.....	Kansas City.
D. S. Holman.....	Springfield.

FLOWERS.

Miss Jackson.....	Louisiana.
Mrs. Dr. Pearson.....	Louisiana.
Mrs. McVey.....	Sedalia.

FINAL RESOLUTIONS.

L. L. Seiler.....	Independence.
S. M. Baylis.....	St. Louis.
J. B. Durand.....	Prairie City.

TUESDAY, TWO P. M.

The society was called to order by the President, J. C. Evans, and an earnest prayer was offered for God's blessing upon the meeting by Rev. E. D. Pearson.

THE WELCOME ADDRESS.

BY W. W. ANDERSON, OF LOUISIANA,

was an earnest welcome to each and every one present that they might enjoy their visit and make it profitable.

Gentlemen of the Horticultural Society of Missouri:

I am here this afternoon on behalf of the citizens of Louisiana, at the request of Mr. Hill, our mayor, who is unavoidable absent, to bid you welcome to our little city, to extend to you the freedom of our municipality, to make you feel at home amongst us and ask you with-

out restraint to freely accept the proffered hospitality of our citizens. We assure you, gentlemen, that we appreciate your laudable aims as shown by your prospects and foreshadowed by your programme for this occasion. We recognize the fact that the horticultural interest of our State has been to a large extent neglected by the most of our citizens, and we hail with gratification your organized effort to bring this interest prominently before our people that they may be impressed with the importance of proper attention to the cultivating of flowers, garden and orchard products.

We are naturally and by education an active, stirring business people, our determination to excel in business affairs, like an extra head of steam propels us with such power that obstacles rear themselves in vain before us. We may be temporarily checked, but while none of this nationality would be bemoaning this fate and nursing their bruises, the American either returns to the attack with renewed vigor, or his quiet, mental faculties suggest to him a way of avoiding the obstacles, and still continuing in the path that leads to natural success. But while this is true and our achievements stand before the world as a lasting monument to our energy, industry and intelligence, the rheumatic tinges, the failing eyesight, the shattered nerves and the final stroke of apoplexy admonish us that we overtax certain of our faculties while others are entirely neglected. Would it not be better for us if after our day of manual labor was over—our shops and offices closed—if we would give some attention to the cultivation and enjoyment of those beautiful flowers with which nature was so lavish in her primitive forests and on her broad prairie, and which, since man has taken possession of these domains can be propagated and grown with so much more elegance and splendor in cultivated soil? The eye that has been straining all day over the myriad of figures on the ledger would be relieved by gazing on a bed of beautiful pansys; the nostril that has for these hours been enbalming the fumes of the factory would be delighted by taking in the delicate perfume given out by the fragrant tea rose; the mind that has from early morning been managing and controlling a large business would be relaxed and take great pleasure in watching the development of green house plants and the successful propagation of some new spices. Thus would our minds and muscles obtain needed rest—our aesthetic faculties be cultivated, our better nature developed and strengthened and we, though a contemplation of nature's wonders and beauties be led to look through nature up to nature's God. Again, the importance of fruit and vegetables as article of diet is almost entirely overlooked by our people.

When we reflect that the best of flour is made into wholesome bread by the use of poisonous powders and impure air, that teas are doctored and coffees adulterated by chemical processes, that disease and death is conveyed to the human system through unhealthy meats, that butter is made from tallow and axle grease; we should cast about us for some source from which to supply our tables with wholesome food. Whence can we obtain this except from the products of the soil? in mother's earth there is no deceit, her chemical processes are pure and thoroughly reliable—there is no poison in a ripe berry, apple or peach, and nothing obnoxious to the human system in a well matured vegetable. Other men have furnished us the means of supplying our tables with pure butter and milk (as well as buttermilk with which to make up pure bread) by the importation of Jersey cows, and when you come proposing to furnish us with countless varieties of fruits and vegetables, calculated to tempt the palate and satisfy the stomachs of the great variety of our people, as well flowers, we can but appreciate your efforts and bid you not only welcome but thrice welcome to our midst.

RESPONSE BY MAJOR RAGAN TO THE ADDRESS OF WELCOME.

We are here to thank you for the generous hospitality extended to us. It is our second meeting in north-east Missouri. We are subject to the invitations of the people of the different parts of the State to meet with them in our annual and semi-annual meetings, and we have accepted your invitation to meet with you in your beautiful city of Louisiana, on the banks of the Mississippi. We come to learn rather than to teach, and we ask the people of the city and the country to participate in the deliberations of our meeting. We wish to engage the interest of the people of the State of Missouri as much as we can in the subject of horticulture. There has been a great interest taken in the last year compared with the feeble efforts made in the last twenty-five years. We again thank you for your invitation, and we hope to be the means of entertaining and being entertained.

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PRESIDENT'S ADDRESS.

Members and friends of the Missouri State Horticultural Society :

We have come together in this, our third semi-annual meeting. We come for the purpose of exchanging ideas and discussing questions pertaining to the best interests of horticulture in Missouri.

While these summer meetings are somewhat a new feature in the work of the society, they are not without interest and great value. In the early part of 1884 your Executive Committee feeling the necessity for more thorough organization and better work, and in order to enlist a greater number of members into the work of collecting products for the New Orleans exposition, made arrangements for the first one of these meetings, to be held in Springfield. That meeting proved a success beyond the expectation of all, awakening an interest in southwest Missouri that is still growing and is destined to grow on to grand proportions.

Encouraged by this success, the society at that meeting decided to repeat the effort the next year at some point to be selected by the Executive Committee at a later date, and Butler, in Bates county, was chosen as the place. That meeting was no less a success in any respect than the first, and still encouraged, arrangements were made for this the third one. And now with the advantage of our past experience and the fact that Louisiana is situated in one of the oldest portions of the State and has always been famous for her horticultural products, let us strive to make this better and more profitable than any former meeting of the society.

Your committee have received many invitations to hold these meetings from all parts of the State, and while they have not sought or desired to slight in the least any section, they could accept but one at a time, and have endeavored to choose each time the place where most good might be done. When these meetings were first talked of the idea was to make the strawberry a leading feature, but now while we do not by any means ignore it, we find very many other matters of importance claiming our attention, other fruits of the season as well as flowers and vegetables, are entitled to their share in our discussions. We are just from our spring work and our minds are fresh on many points of interest that would be forgotten at our winter meeting.

Here also we can cultivate our acquaintance and enjoy the social

feature just as well as in winter, so let us reach out a little further and grasp some of these subjects of importance.

At the last annual meeting, held in the normal school building at Warrensburg, steps were taken to ornament the grounds belonging to that institution. Members of the society from various parts of the State, as well as from Kansas, Iowa, Indiana and Texas, kindly and liberally donated trees, plants, etc., and Prof. Kern, U. S. Commissioner of Forestry, in his kindness toward this society and the normal school, agreed to superintend the planting.

On the strength of this arrangement the State authorities named April 16 as "Arbor Day," and on that day, all things being ready, the planting was done, and the trees stand as a monument to the memory of the Missouri Horticultural Society as its first effort at ornamenting the grounds of our public schools.

I trust I am not saying too much when I say that this is only a beginning of that good work, and that each succeeding year will have its arbor day, and it will be celebrated by planting trees and other ornamentals by members of this society and others all over the State, until all school grounds of every description shall have been so ornamented as to do credit to our State, and stand as lasting lessons of instruction to the coming generations who are to be educated in these schools. It has been suggested to me that we might, by calling on the Department of Agriculture at Washington, get some donations to help us on in this work. I am sure Commissioner Colman heartily endorses our efforts, and I believe he will do all he can consistently to help us.

I would recommend that this society, by the adoption of a proper resolution, or otherwise, ask that the Department of Agriculture assist us, as far as is consistent, in carrying out this work. The subject of a Missouri fruit show has engaged the attention of your executive committee for some time. They have conferred with the fair associations at St. Louis and Kansas City, with a view of making the show this fall. The only difficulty in the way is the want of a necessary amount of money to offer as premiums, and the fair associations do not feel warranted in putting up as much as would be required to make it a success, nor will the limited appropriation to the society justify the effort. If we had sufficient means to pay actual expenses, I believe the members would be willing to do the work, and we could make an exhibition of fruits that would be worth to the state ten times the cost; but with our limited means we can do nothing in that direction. I believe if we ask our legislature in the right manner—show them what we are doing, and

the means required to do it—they will not hesitate to give us what we want. I therefore recommend that we appeal to the next general assembly of the state, and ask that the appropriation to the State Horticultural Society be increased from \$1,250 a year to \$2,500 a year, or \$5,000 for the two years. This will enable us to make exhibitions of the horticultural products of our state, do our routine work, and assist in organizing more local societies. A number of them have been organized in different parts of the state, and they are doing good work, but we want more of them. There should be at least one for every two counties in the state. If there were no local societies, we would have no state society. The more local societies there are the more efficient will be the work of this society. We want to make this society more useful to the members and more valuable to the state, and we must depend on the local societies to help us to do it. Our state is rapidly increasing in wealth and population, and it stands us in hand to keep pace with the times.

Now, our society, meeting as it does on the tramping grounds of one of the leading horticulturists of the state (our old friend Mr. Wm. Stark), who was always present at these meetings, and whom we knew but to admire. We remember him now as one of the leaders of fruit growing interests of the state, and as one who had much to do with the position our state now occupies as a fruit state. So then, meeting here with the sons of our old friend, we are glad to know they have lost none of the zeal of their father.

Let us, then, continue our good work, remembering that we have more of the pleasure of life in our work than is usually allotted to other business. Our future is bright, and we have nothing to fear if we only work with earnestness and zeal. No state opens greater opportunities to the fruit-grower, nor gives greater advantages. Let us take them.

REPORT OF COMMITTEE ON ORCHARDS.

REPORT BY D. S. HOLMAN, OF SPRINGFIELD.

Officers and Members:

As a member of your Committee on Orchards, I am requested by your chairman, Mr. Gano, to report to you the condition of the orchards and the fruit prospect at the present time in southwest Missouri.

Allow me to preface what I may report by regret that we do not get into these orchard reports that system and thoroughness a matter of so much importance demands. I have hoped for two or three years that the next time some one with more time and better method would give you a report worth reading, and worthy of our section of the state, but the same difficulty is with us once more, and we proceed.

Allow me once more to tell you, without boasting, but gladly, that in the opinion of a part of your committee that the hill country from which I report and a strip of similar lands from northwestern Arkansas, say from the top of the Ozarks to the summit of the Boston Mountains, is nature's best apple lands of the west. As experiment in planting and fruiting the apple there advances this becomes more apparent. To utilize the natural advantages given here is the mission of horticulture to-day with us. While we are slow and have made many, very many, failures, we are learning and, I believe, going forward. One of our orchardists there said if he had known at first what to plant he would have been many thousand dollars richer to-day. Our orchards have for profit too many varieties. This we have learned at much cost, and are correcting by only planting a few sorts.

Another evil in our orchards there is want of proper treatment. We have planted too much and cultivated too little. We have at last learned that the law by which man eats bread must be recognized in the orchard. A little more sweat upon the brow and we may eat and sell better apples.

Our orchards are getting more cultivation and are responding in good growth of wood and healthy, good foliage, looking a little better now than last year.

As prospect for crop of fruit there was a general good show of bloom on all trees but the peach, and nearly all varieties of the apple set fruit well, and while much of it dropped there is, perhaps, enough

remaining for a profitable crop, and, of course, must be larger and better from thinning. The crop of apples in Dallas, Polk, Dade, Lawrence and other counties near us is pretty satisfactory. In some parts of the district it has been injured some by hail, but in Greene we escaped.

Where there are pear trees there are pears this year, and thus far we have escaped the blight.

Peaches in Greene did not even bloom, and the older trees are so damaged they will probably never fruit again. The peaches there twenty years ago were plentiful and almost sure every year, but now the peach belt seems to have moved south and east of us, if, indeed, the right place for a sure crop can be found anywhere.

Respectfully,

D. S. HOLMAN.

Mr. Holman—There seems to be a disposition to grow fruit without labor, and I think in part of the country we are trying it pretty well, but I am satisfied we can not grow apples without cultivation any better than we can grow corn without labor. We find that grass and clover are smothering our trees, and I think we are now learning that if we cultivate our trees we may hope to be able to eat Ben Davis and other kinds of apples.

REPORT BY CHARLES PATTERSON, KIRKSVILLE, MO.

KIRKSVILLE, Mo., June 7, 1886.

To the President and Members of Missouri State Horticultural Society:

To indicate my respect for you and your requirements I will endeavor to go through the form of making a report on orchards without much hope of contributing anything useful or reliable. I have had but very few opportunities of observing other orchards than my own, and that but very superficially, and inquiries from others no more favorably situated, could hardly elicit more than current impressions.

And these seem to agree unanimously that the present prospects are uncommonly favorable for good crops of all kinds of fruits, as well

as other farm products, except peaches, which were nearly all killed by winter, 1884 and 1885. But what reliance to place on these promises is hardly profitable to discuss at this time.

If they should be fairly realized, we may expect prices to go away down, in full keeping with the universal tendency of all labor products, and the question might arise whether to let part go to waste or save all, and still further depress the markets with a bare chance of being paid for the immediate labor involved. The best selections seldom fail to bring remunerative prices, and the medium will surely help educate the taste of the masses to a more liberal use of fruits, and thereby create a larger permanent demand, and have a tendency to displace stronger diets and stimulants. These gluts and break-downs in the markets are not so much the result of over-production—more than the world can consume—as of the ancient delusion that fruits are a luxury which only the well-to-do can enjoy, rather than a substitute for bacon and beans with the laboring man. One-fourth of our present supply would have been a harder drag on the markets when the population was half its present volume than any we are likely to see.

The last was another test winter, 22 below repeatedly, and would have killed peach buds if there had been any, but I have scarcely observed anything winter hurt like the year before, because all were well ripened before winter set in. As I expected I am not done replacing apple trees killed and hurt by the previous winter, and very likely will keep replacing from the same cause for several years yet.

Respectfully,

CHAS. PATTERSON.

DISCUSSION.

A visitor—In the southern part of Pike county our prospect for apples is the best we have had for a great many years, though some four varieties have the scab. Belle Flower, Early Harvest and Vandever seem more of a failure than any others.

President—To which of the Belle Flowers do you allude?

Answer—The White.

Mr. Lionberger—The bark of many young trees has died with us. The Yellow Belle Flower does no good with us. The grape fly has done much damage, but the trees are getting over it to some extent.

President—Have you noticed that that is confined to any particular locality as to elevation?

Mr. Lionberger—I have heard of it in several low places.

Mr. Speers of Bates—The general condition of orchards in our

county is good, with a fair prospect of not anything like a full crop. We have twig blight more than ever before. I have also noticed that it is worst on the highest and driest places, while I have noticed but little of it in any low location. My orchard is on high ground and the Willow Twig is worst in it. In my young orchard I have been troubled with a kind of rust or mildew on the leaves which caused the apples to become scabby and to fall off. I find it in many orchards, but worse in my own. It appeared from two to three weeks ago; and I have noticed no fresh blight in the last week. In one of the largest orchards in Bates county I noticed yesterday a strip through the orchard where all the trees, old and young, of all varieties are blighted.

Mr. Holman—I saw as I came to this meeting the first twig blight on the high and hilly land near the Gasconade, where there had been a great deal of electricity, as was shown by the trees being struck. Some trees looked very bad and as if it had been all done at once.

A visitor—Can anyone tell us what is the cause of scab?

Mr. Speer showed specimens of rust and scab.

Mr. Goodman—It is a vegetable parasite or fungus growth. How to prevent it scientists don't know. We are just beginning to learn of these parasites. They require certain conditions of temperature and moisture and spread very rapidly when the conditions are favorable. This on the apple is the scab, another variety of fungus growth. It is attributed by most naturalists to bacteria. The sap becomes sour and the conditions being favorable it will spread very rapidly. We do not know what to do yet. Our scientists are lost. We sometimes think we can stop the pear blight by cutting it off. We know that trees which have become debilitated most are the worst affected. On the high grounds the large crops had exhausted the trees. On low grounds the hard winters had injured the trees.

Mr. Speer—How to stop it would have been worth \$500 to \$1,000 a year to me. Where the trees are rusted I find the apples are nearly always scabby. I would like to know if there is any connection between the two.

Mr. Goodman—There is no connection between the two.

A visitor—Will apple not scabby now escape?

Mr. Goodman—They may.

Mr. Durand—Did the secretary say that twig blight and pear blight are of the same nature?

Mr. Goodman—I did not.

Mr. Lionberger—Apple and pear trees standing side by side are affected just alike. I believe a thrifty growing tree is not a subject to

diseases as others. Thorough cultivation and the application of manure are the best preventives.

Mr. Burrows—In regard to the scab, it is not a fact that it does not exist on young trees. I have noticed it just as bad on young trees as on old ones. I think it is caused by the exhaustion of the soil so that it can not supply the material necessary for a perfect apple. I do not think it is caused by any insect or fungus growth. It has only failed to receive what it ought to make a full and perfect apple.

President—If we should continue our discussion of this subject till to-morrow, we would know a little less than we do now; so I think we had better take up the next subject.

BENEFIT OF PEACH TREES IN APPLE ORCHARDS.

BY HENRY SPEER OF BUTLER, MO.

To the Officers and Members of the Missouri State Horticultural Society :

My subject, the benefit of peach trees in an apple orchard is one which, coming as it does at a time when nearly all of our fruit growers are being discouraged, and a great many of them disgusted with the peach, on account of failure of fruit and loss of trees, may not have the interest which under more favorable conditions it would have, but I regard the peach as too valuable a fruit to give up without further trials, and advise further planting. In this short paper I shall confine myself more particularly to the benefit to the apple orchard to be derived by planting peach trees alternate between them, my present method is to plant in squares twenty-one and a half feet apart, alternating, which gives nearly one hundred trees; fifty of each to the acre. Now as to the theory of the matter, it is generally admitted that apple orchards grow better, make straighter trees and come into bearing younger if planted pretty thick, this is especially true of exposed prairie locations in southwest Missouri and eastern Kansas, and

all the reason which can be assigned is, that the trees the sooner shade the ground and protect each other from the effects of the sweeping winds: now as the peach is a quick grower, it the sooner furnishes this needed protection; another advantage in the peach for this purpose, it is a short-lived tree in our climate, and if planted at the distance recommended will, as a rule, have passed its day of usefulness before it will materially interfere with the apple trees, and if not already dead, the owner will have no compunctions of conscience in removing it; where if an equal number of apple trees had been planted, very few men would have the nerve to remove them till the whole orchard would be in a starved and ruined condition; another advantage of the peach for this purpose is, it fills the ground literally full of roots, which readily decay when the tree is removed and furnish drainage, food and a good mechanical condition of the soil for the feeding roots of the apple trees. This is perhaps enough on theory, as all theories to be of use must be practiced, I will give some practical results: in my first planting of trees I planted apple trees thirty feet apart in squares, in a small portion of the orchard I planted peach trees half way between them one way, in that part of the orchard I got nearly all my apples for several years, and it has been uniformly more fruitful since, with no other sufficient cause to account for it; and wherever I have seen apple and peach trees intermingled it has appeared to me to benefit the apple trees. In conclusion I will say plant peach trees, don't devote the land entirely to the peach but plant them in your young apple orchards and it will pay you. The stove wood which can be secured from an old peach orchard is of itself no small item in a prairie country.

HENRY SPEER.

DISCUSSION.

President—Are there any remarks on the subject?

Mr. Lionberger—This planting together has been a great disadvantage.

Mr. Durkes—I believe that if we will take care of them, planting together would be advantageous, keeping the peaches well headed in. I think we should not be discouraged in regard to the peach but form new orchards, especially upon new locations where no orchards have been before. The peach does much better in fresh virgin soil, unless we go to the trouble of supplying fertilizers.

Mr. Holman—I planted one hundred acres of orchard for a Mississippian, about half in that way on the northwest to make a wind

break. It did first rate. It make a wind break and at that time gave peaches and stove wood both. I don't think one fruit affects the other and I believe the wood itself pays. I don't think the peach trees did the orchard any harm, for the food of one is not the food of the other; each takes its own. We ought to keep planting and if we don't get peaches we will get wood.

Mr. Burrows—I am sorry that we have to grow firewood in the orchard. If it is rightly attended to, the orchard is the most profitable acre on the farm. The apple tree is worth all of the soil it can get, and short-lived orchards are caused by the exhaustion of the soil on which they stand.

Mr. Holman—I never knew peach trees to exhaust the soil. The richest old land we have is where we have had our peach orchards. To double the apple trees would exhaust the soil.

Mr. Ragan—I came to Missouri seventeen years ago. I set ten acres with apple and peach trees. I set a tree to every square rod—three peach trees to each apple tree. My experience is, those peach trees paid me more money than anything I ever invested in in Missouri. I got three crops. I have been cutting those trees out, and I can not see that they have injured the apple trees. We have had no peaches for four years, and at my period of life I don't purpose to plant any more, but those peach trees proved more profitable than anything else I ever planted. As to the exhaustion of the soil, I live on the Missouri bluffs, where the soil is fifty-three feet deep.

Mr. Speer—I wish to state that my experience has been upon the open prairie. My theory was advanced more especially for those upon the open prairie. I advocate that the peach be planted with the apple only in exposed locations. When they are cut down, the decay of the roots of the peach will furnish more food than they have ever stolen from the apple. We very often overlook the important point that what may be very good upon one soil and exposure may be very bad upon another.

Mr. Bayles—From my experience I favor separate planting, though I have no special reason except I like to see them separate. I have never seen many experienced horticulturists who plant together. Two neighbors planted, fifteen years ago, peaches and apples together, and in a few years had to cut down the peach trees, for they were killing the apples. The peach, being a quick growth, takes too much from the apple.

PROTECTING OUR ORCHARDS FROM SNEAK THIEVES.

DISCUSSION.

Mr. Goodman—We have been troubled very much with loafers, or tramps, who take our fruit. They ought to be shot, I presume, but we can not do that.

Mr. President—Why not?

Mr. Goodman—I don't like to kill a man for stealing apples, but how shall we protect them? What is the law upon the subject?

Mr. President—I tell them to come by the house and they can get what they want.

Mr. Bayles—I had to abandon fruit growing even for my own use. In the East they put up signs around the place against trespassing, and they enforce the law. They arrest and prosecute the trespasser.

Mr. President—Is it necessary to put up signs before we can enforce the law against trespassers?

Mr. Goodman—I think it is better to put up the signs, and then we can prosecute them.

Mr. Lionberger—I know a man who has a night watch.

Mr. Holman—I tried shot guns, and other guns. The best way is to make them believe you will hurt them. We built a guard-house and kept a guard in it some of the time. We shot once or twice, and hired a man to halloo as if he were hurt. Nothing will do but to watch your fruit and keep them out of it. It is tempting. It was tempting in Eden and good folks will steal fruit.

Mr. McIntyre—I think the pruning process is destructive to orchards. My plan would be to use the pinching process.

Mr. Evans—May it not often depend entirely upon the time when the pruning is done? I can not undertake to tell when it does hurt, or when it does not hurt. I knew of a case in which thirty Northern Spy trees were pruned, one each day, in June. Some of those trees have died and others have done well.

Mr. McIntyre—I would like to know what is the best time.

Mr. Goodman—I want to get facts from the members of the society as to when we can prune and have the wound heal up completely.

Mr. Burrows—We prune nursery trees just as soon as we think the cold weather is over, and the cuts are nearly all grown over now. We usually prune the last of February or early in March.

Mr. Bayles—Summer pruning, if severe, will invariably produce black heart, whether the tree be large or small. When the winters have been bad it will be worse. All severe pruning should be done in the spring, when the sap is not flowing so rapidly. Severe pruning in June takes away the evaporating surface, so that the sap sours.

Mr. Patterson—There is a time when the young wood is forming very rapidly, and then limbs can be cut off safely, for the sap is thick enough to form wood rapidly. Sometimes you can remove the bark, and new bark will come in three days. Then it is safe to prune.

Mr. Burrows—In removing bark we do not disturb the wood at all. I have had good experience in girdling for fruit. If you injure or disturb the wood new bark will not grow.

Mr. Bayles—We should be governed by the condition of the tree we are pruning—we can not lay down rules as to the exact time. We make a pruning in the spring, and then a second one when the sap is descending in June or July. I go by the condition of the growing tip, rather than by the length of the young shoot.

Mr. Madinger—I think no great amount of pruning should be done in June, but water-sprouts should be removed.

Mr. Goodman—Is there not a time in which we can prune large branches from old trees without injuring them much?

Mr. Burrows—The last half of June is the best time to girdle trees to induce fruiting. You may do this and in a week it will begin to turn green, and in from four to five weeks it will be filled up with new bark. We planted trees fifteen by thirty feet, and in girdling each alternate tree we found the last half of June was the best time for fruit. When the subject was brought up at the meeting of the Illinois society, some doubted its efficacy. We had girdled 5,000 trees. When Prof. Turner came to our orchards and saw these trees loaded with fruit he said, it was worth going a thousand miles to see. That girdling was done for the same reason as right pruning; to check the growth of wood and induce fruiting. Tackle some of your Belle Flower trees. We do not girdle two years in succession, which might check too much. We have also girdled pears with good results.

Mr. Evans—My experience in girdling is that it should be done just about the time the trees are forming their terminal buds. This time varies with tree, the season and the cultivation. We find trees in the forest now that have made their years growth in length.

Society adjourned until 7 P. M.

TUESDAY, 7 P. M.

Society met and was called to order by the president.

The "Sweet Singers of Israel" who live in Louisiana, gave the society a number of very fine selections of music, which relieved the monotony of the session and proved highly gratifying to the delegates.

THE REPORT OF THE COMMITTEE ON SMALL FRUITS

was given verbally by many of the members and visitors present, and partook more the form of a discussion.

L. A. Goodman, Secretary Missouri State Horticultural Society:

I am crippled up so that I could not get around to learn more about the apple crop, therefore the blank you sent me is not well filled. And my report on small fruits will be a condensed one.

Strawberries are about over, and all done well for the chances they had. *Cornelia* and *Crawfords No. 6* are very promising new ones. *Crescent*, *Cumberland*, *Captain Jack* and *Glendale* bear the heaviest crops.

Raspberries—*Black Caps* all promise well except *Gregg*, which was considerably killed by the winter. *Bluffton*, a new seedling, black cap raised here bids fair to match the best. *Hopkins* looks well. *Reds* are all doing well, pretty fair except *Mariboro*, which was mostly killed to the ground, enough canes however left to give us some fruit. *Shaffer* also winter-killed a little in places, but enough left to make a big crop.

Cherries—A failure. *Snyder*, *Taylor* and *Western Triumph* a full crop. *Lawton* and *Kittatinny* winter-killed as usual.

Currants—A splendid crop.

Goosberries—Ditto. The *Orange* and *Oregon*, both promise to be great additions to this fruit.

Grapes—Promise well, but I have observed some mildew already. I cannot be with you at Louisiana—too lame to travel in any way. Hope you will have a good time of it.

Yours fraternally,

S. MILLER.

Mr. Thomas.—I might say that I have made a success of growing small fruits, but to tell you how to succeed might be easier for some one else than for me. We have had a good crop of strawberries, but the price has been too low to talk about. We have the promise of a fine crop of raspberries. We have discarded all blackberries but the Snyder and a few Taylor.

In planting strawberries I am to plow the ground in the fall and replot in the spring to get the ground in as good condition as possible. I plant two rows of Crescent and one row of the Wilson, Captain Jack or Sucker State. The Sharpless would do were it not for the danger of a late frost. I cultivate thoroughly and remove the blossoms as soon as they appear, and the next year we get plants from these beds and thus get no seedlings as we would have done had we let them mature fruit. Sometimes I mulch in the fall, but if it is wet I let the crab grass grow and they need no other mulch. If the plants get too thick we plow a row and mulch.

The old Wilson has of late been troubled with the crown borer, and is sometimes badly injured by a worm that rolls up the leaves. I think the Crescent is the only berry we can grow at the present low prices. We are compelled, even in local markets, to compete largely with Chicago and St. Louis prices, and all the profits, if there are any, goes to the express company. I wish some of the rest of you would get out of the business and let us have a better chance.

I still grow the Doolittle raspberry. The Gregg seems to die if you cut the tops off. It is also too late to ship north as it would have to compete with home grown earlier kinds.

The Charles Downing strawberry has the same fault as the Sharpless, if you have late spring frosts it is gone. The Sucker State I like very much, except it does not produce enough fruit. The second year it does better. I hope to find a berry that will be ironclad, produce with the Crescent and ship with the Wilson.

Mr. Brown—Has the gentleman tried the Ohio raspberry?

Mr. Thomas—No.

Mr. Erans—Has he ever tried the Hopkins? I don't know a better one.

Mr. Speer—A small plantation of Hopkins in Bates county has the finest promise I have seen this year.

Mr. Erans—The Hopkins will bear good treatment as well as any kind, and will come out better than other kinds without any treatment.

Mr. Brown—I like the Ohio. It is very hardy, not quite as large as Gregg, and it is very productive. It is rather dry.

Mr. Speer—Will the raspberry pay to raise for market where it has to be shipped?

Mr. Thomas—I have shipped for nine years. It has paid better than any fruit I have handled. The Mammoth Cluster was too late to ship north, so I discarded it.

Mr. Erans—How many crops of raspberries have you made, say in a series of ten years?

Mr. Thomas—I first raised five good crops in succession, the next a half crop, and a very fine prospect now, making seven years.

Mr. Erans—How many crops of strawberries have you made in ten years?

M. Thomas—In the past ten years I have made two almost entire failures and one partial failure. I am now prepared to water my strawberries to some extent by a wind mill and hope to make it profitable in a dry year. I would say that seven crops in ten years would be about what we can make.

Mr. Erans—One more question: on which can you make the most money in a series of ten years?

Mr. Thomas—For the past ten years strawberries. For the next ten you had better take raspberries.

Mr. Erans—In our country we can make more money with the Hopkins than with any other berry whatever.

Mr. Brown—Have you the sawfly that cuts up the cane of the raspberries?

Mr. Erans—No, sir; we have nothing of the kind.

Mr. Bryant (of Illinois)—We have a fungus that is using up the Doolittle almost entirely, making some plantations almost valueless. It is on the young cane and not on the leaf. You will find canes with the young leaves beginning to curl and the next year the berries will all dry up.

Mr. Erans—Are the canes inclined to be too small and too numerous?

Mr. Bryant—They grow very well early in the season.

Mr. Goodman—Give us the history of those big strawberries.

Mr. Bryant—They are *Bubach's No. 5*. He has grown about five hundred varieties from seed and this seems to be the best. This is the fourth crop he has grown.

Mr. Erans—Has he shipped them to any great distance?

Mr. Bryant—He has shipped some, but not to any great distance. I think he sent some to New York in very good condition. I think it will be rather perishable to ship, as large berries as they, usually are. I think it is the finest large berry I ever saw.

Mr. Erans—Has he other varieties on the same ground and under the same treatment?

Mr. Bryant—He has ten acres of Sharpless, but we do not like it on our rich black prairie soil well fertilized. I think the *Bubach* is quite productive, but we all know the *Crescent* is the berry for bushels. I don't think it will make more bushels than the *Crescent*. It has very strong foliage, and stands drought well.

REPORT OF COMMITTEE ON FLOWERS.

BY MRS. WADE BURDEN, OF SPRINGFIELD.

Missouri Flowers of 1886—What pleasures they have given since our last meeting, what eager hands have been outstretched to grasp them from the sweet spring blossoms of the prairie to the choicest exotics of the green house. All have had their mission of delight, and what memories have they brought of other flowers and other days—childhood days—when our hopes were as bright as their fair petals memories, sad and sweet, are called forth by the sight of their lovely blossoms. Visions of fair brides that we have loved and lost standing before the altar crowned with orange blossoms, or of the pale, dead face of a loved father, mother, sister or darling child now resting peacefully “under the daisies.” And what comfort they have brought to the sick room. Many an eye has brightened and tears of gratitude have trickled over pale cheeks at the sight of them. They have

brightened the dull room and caused many a sufferer to forget their pain. If those who cultivate flowers could realize the satisfaction, the enjoyment there is in the possession of a few flowers, they would be more thoughtful about sending them forth on their cheering mission.

In the awful tragedy that but lately sent a thrill of horror throughout the land (the murder of Sarah Graham), one kind heart was prompted to lay a wreath of flowers on the casket that held the mutilated form of the victim, the form that had once been beautiful with youth and health. It was a christian act and will never, never be forgotten by the heart-broken sister of the poor murdered wife. Only a few days since millions of Missouri flowers were bought by loving hands to decorate the graves of the nation's dead. They were strewn over the last resting place of both the blue and the gray, and shed forth their sweet perfume alike for both. The past winter, though stern, has been kind to the Missouri flowers. Before sending forth the Ice King he carefully covered the earth with a coverlet of snow, and when that was worn away another took its place and the roots and bulbs and seedlings were safe and warm beneath it, and when spring came with its gentle breath they sprang forth to meet her. Spring has held undisputed sway, nor suffered the blighting frosts to chill them, and there were never as many beautiful flowers as now. Delicate Tea Roses have survived the winter in the open borders. The Marchal Neil, Etovle de Lyon, Marie Guillot, Lazarene Poizeau, Pearl de Jardin, White Tea, and many others are blooming on strong, vigorous shoots, giving a wealth of bloom in striking contrast to those that have been set this spring. Greater attention is paid to flowers than ever before. There is a constantly increasing demand for them, and no home is considered perfect without its flower bed. The Horticultural Societies are largely responsible for this state of affairs. Their continually agitating the subject has produced good results until a neglected yard is criticized as severely as an untidy house.

May they go on with the good work until all the homes in the land are beautified and enriched with the choicest blessings of horticulture.

MRS. WADE BURDEN.

SPRINGFIELD, MO., June 5, 1886.

Mr. Nielson—The beautiful song sung just a few moments ago carried me back to last Sunday evening when I heard the song, "I Am the Light of the World." Fruits and flowers are next to christianity in lifting us upward from the earth towards our maker.

Of flowers I may say there are three kinds: bedding flowers to decorate our home grounds, lovely flowers in pots and cut flowers ar-

ranged. These all tend to lift up and purify our hearts. The rose stands at the head of all flowers. The Geranium comes next. It stands our hot sun and endures hardships better than any other class. Then comes the Verbena and the Pansy, a wonderful little thing which has eyes like man, and must be cared for in partial shade. Flowers are appropriate and beautiful for occasions of joy and of sorrow. We use them for the wedding, and they are the last emblems which we use upon the graves of our friends.

Mr. McIntire—I find flower growing a very pleasant business, and the more I work in it the more I like it. I am very sorry I did not bring some flowers with me to-day.

Mr. Goodman—In our local society we offer a premium for the best bouquet, and when the premium is awarded we sell the flowers to the highest bidder. Sometimes a little hand bouquet will bring fifty, seventy-five cents or even a dollar and seventy-five cents. In all our horticultural work we do not neglect the flowers. We find in walking up and down the streets of this city that they have been greatly neglected.

Mr. Brown—It is a good plan to encourage the ladies to get up a floral society, and they will help you out. I believe a society of this kind is one of the best things to help us appreciate the use and beauty of flowers.

Mr. Holland—I have charge of the floral department in the Insane Asylum at Fulton, and I never fully realized the good of flowers until I went there. It does one good to see how the inmates of that institution appreciate flowers. I remember a poor unfortunate lady who admired the flowers and wished that she could have a few for her own. To give her a few flowers was a real pleasure. How any person can understand and watch the growth of plants and say there is no God is astonishing to me. If we would study the growth and nature of flowers I think we would all be interested in them. Nothing can be more cheering than to see flowers. Is there any money in it? Is there any money in making home bright and pleasant, and those we love cheerful and contented? We do not take pride and pains enough in our flower yards. We are deficient in Missouri in this respect.

Mr. Bryant—Is there money in keeping your boys at home by making it beautiful?

THE ADORNMENT OF HOME.

BY MRS. NELLIE M'VEY, OF SEDALIA.

In Holy Writ we are enjoined to "build houses and dwell in them; plant gardens and eat the fruits thereof," and few injunctions meet with more hearty approval or bring richer rewards for their obedience. It is gratifying to know that the houses need not of necessity be either costly or elegant, all may build according to their means. Often the merest hut is more surely a home than is the grandest triumph of architectural skill. The home is the cradle of the nation. From no other source springs such lasting influences for good or evil. We always remember home, and the lessons learned there. On life's battle field, amid the smoke and din of warfare, these lessons may become dimmed, yet down in our hearts they live as nothing else will live, and a familiar flower, a floating breath of fragrance, the melody of some old song, will often sweep away the cobwebs and corrosion, and the dear old home beams out of the past so vividly, and strong men are not ashamed of the tears such memory bells bring to their eyes.

How important, then, that we have good homes from which to send forth the coming men and women, and no home is worthy of the name that is not, in its best sense, beautiful—in simplicity, taste and refining influences. Where can you find homes more truly beautiful than those of the farmer?

The city home, with its elegant carvings and massive stone walls, may excite admiration—envy, if you please—in the hearts of those who only see the glitter beyond the shimmer of costly laces, but the beautiful rooms fronting upon the street, with their fillings of lovely things which only money can buy or leisure create, are not the "homes" of the city people; these lovely places are the "parlors"—the show places of the establishments, and people do not live in their parlors. Back of all this, often in dark and dingy rooms, poorly furnished and full of bad smells, and opening into or overlooking nasty alley-ways, live the ones so blindly envied, while they—the denizens of dust and dampness; do you ever think how they long for an hour among the cool grasses, a breath of the sweet country air, or the meanest clump of meadow violets and nodding golden lillies.

"Without money and without price," nature says to her children, as she displays her treasury of tree and shrub, flower and vine, grasses, mosses and tubers. She never neglects, and she only asks guidance and selection in order to make of your home a very picture of beauty. How prodigal she is! What quantities of gold and scarlet, crimson and purple, yellow and blue—georgious dyes and delicate tintings she scatters about if you will allow her! Look at her banks of sweet peas, petunias, phloxes, verbenas, portulacacas, pinks, asters and chrysanthemums! And all summer long she will pile about you her filmy laces and glowing tapestry, pouring over all the most costly perfumes. Even the neglected fence corners she fills with her berry bushes and blossoms, and every hedgerow and highway flane with her lavishness. Even the waste places are redeemed, and the sturdy grapevines clamber from bough to bough of the lofty forest trees. Not content with fruitage and flowers, she brings the sweetest of bird song to please the ear. And then, when the harvest is ended, she empties her remaining dyes over wood and wold, and the glory of the autumn time—who shall portray!

With an occasional lift from masculine hands and the helpful fingers of the little ones, added to some taste and training of your own, all this prodigality of fragrance, flowers and fruitage can be yours. Taste and care has more to do with creating a home than money. Home should mean more than a shelter, and if financial reasons alone should influence you, every added evidence of taste is an added dollar to the financial value of your place. Limited means and lack of leisure is the farmer's plea for neglecting the ornamental, but a half hour taken from your field, an acre less of something planted, will not count when weighed against the pleasure which you must derive from the sight of and pride in your beautiful home.

The location of the house is a matter of taste; but when the house is built, be it one room or many, be sure to allow a thick sward of grass to creep up even to the door-sill, either by "sodding" or sowing lawn seeds. A bare yard is a bad advertisement of your home life. If you have a ground work of green, it is an easy matter to dot it here and there with bits of bright color. Don't attempt too much at first. Begin with a few hardy shrubs and perennials. Don't forget the hardy roses. Take care of these, and add to them as you can care for them. They need no coaxing, but will repay attention. Don't plant trees in front of the house, at least not close enough to shut out the air and sunshine. Plant plenty of vines, the woods are full of them, and the florists will supply you with ivys, creepers, clematis, roses, honey suck-

les and other hardy climbers at small cost. For out-houses and back-porches, the hop vine is both useful and beautiful. By all means have an Ampelopsis vine, their autumn foliage is simply perfect. If you have any unsightly rubbish heap, or back buildings, don't fail to plant freely about them the *Convolvus Major*—the dear old Morning Glory, and the tall *Nasturtium*. You cannot do without their radiant blossoms. If you happen to find an old decayed stump, and can get it torn up and conveyed to your kitchen yard, by all means appropriate it, fill the crown with rich soil, and plant Dwarf Morning Glories and *Nasturtiums* therein. It will be a "thing of beauty" all summer. Gather up all the rocks and broken crockery, and any defiant knots which resist anything short of dynamite, pile them up neatly, fill with soil, and on these plant any of the many pretty trailers, ground ivy is pretty and "lasting," and among its roots, drop a few seeds of pretty, bright flowers.

After all this is done, get a few annuals—the hardest and free-blooming. *Petunias*, *Phloxes*, *Verbenas*, *Asters*, *Sweet Williams*, *Stocks*, *Portulaccas*, *Balsams* and *Chinese Pinks*, *Poppies*, *Zinnias* and *Marigolds*. Some of these will bloom the second year. Don't neglect the *Chrysanthemums* and *Hollyhocks*, *Gladiolas* and many other bulbous plants are perfectly hardy, and will gladly grow for the asking. If you have no other place to plant them, and are too busy to give them separate culture, slip the seed into the vegetable rows—among the lettuce and onions, and the bean bushes and the beats. Flowers are as pretty as weeds and will grow as well; *Asters*, *Zinnias* and *Poppies* and *Marigolds* are all taller than the cucumber vines or the tomatoe bushes. Edge the vegetable beds with *Pinks*, *Petunias*, *Larkspur* and *Phloxes*. *Coreopsis* grows well with carrots, and *Primroses*, *Carnations* and *Balsams* take kindly to the late potatoes. There are many ways if you will have flowers, and I would, if I were you. If you have an objectionable outlook from your kitchen door, or window, sow hemp seeds between, and don't forget to drop a Sunflower seed or two among the hemp. It will become quite a grove, and the chickens will like the ripened seeds in the fall.

In so many ways, and with so little means can you beautify your homes without; but there is a within, and in no way can you exercise taste so thoroughly as here. This is mother's province, and if she have daughters, or beauty-loving sons, here is their chance as well.

Above all things, "let there be light." Don't shut away the sunshine. Bare floors and white washed walls are not the worst things in the world, and there is so much the more room for the exercise of taste. Pretty home-made rugs, pictures framed by home hands, brackets and

shelves from the home work shop, which a little paste and paint, and a yard or two of bright papers or "flowered calico," can transform into real treasures; pressed leaves, dried flowers and colored grasses make pretty ornaments for shelf or table. But above all, have plenty of books and papers. Don't think you "cannot afford" these. Get the useful, if only in the cheap form, and books and papers are so cheap now-a-days, that their rejection is poor economy. Teach the children to love reading. If possible, have some sort of good musical instruments. Books and flowers and music will make the plainest home beautiful, and their refining influence is untold. Your boys will be more manly, the girls more amiable, and the mother less weary of her work, for these refining and refreshing sources. I remember such a home, away in the beautiful past, in whose wide, whitewashed kitchen gathered nightly a now scattered band; father, with his books and papers, mother, busy with her needle, while stalwart brothers, bending to the will of the "spoiled darling" of the household, mingled their tuneful voices in the melody of some old, sweet song. Out into the world they went, never to meet again; yet the influences of that lowly home followed them, "even unto the end."

After all, the greatest beauty of a home lies in the happy hearts of its inmates. We want to so endear the old home to the nurslings, that when they must try their wings, let them go forth, wrapped about by such home influences, that evil will have no charms in their eyes. Set their feet so firmly in the beautiful paths, that they will not be easily tempted into the ways that lead to death. Make home beautiful, in its sweetest and purest sense, and bind its memories, as a mantle of protection about the hearts of your household band.

IDYLL.

MAY, 1886.

At the close of the paper the society adjourned until 9 A. M.

The papers were interspersed with some very fine singing by the choir, which was enjoyed very much by all present.

WEDNESDAY, 9 A. M.

The following letters were read by the Secretary.

One from *The Rural New Yorker* and also from *The Prairie Farmer* asking for reports of the meeting.

CENTRALIA, Mo., June 8, 1886.

Mr. L. A. Goodman :

DEAR SIR—I regret most sincerely that severe illness makes it impossible to meet with the society to-day. I had contemplated a great deal of pleasure at your meeting, and my disappointment is very great indeed.

I earnestly hope that the members may have a good time, and at the same time advance the interests of the Horticultural Association.

I am, very respectfully,

MARIE RODEMYRE.

KIRKWOOD, Mo., June 4, 1886.

Mr. L. A. Goodman :

DEAR SIR—Yours of May 31st is received. The leaves of apple enclosed are affected with what is known as Black Rust, a fungous disease which has yet to be thoroughly investigated. I have observed it in our orchard in previous years. From its sudden appearance, it would seem to be simply of a parasitic nature and on the leaves alone, developed only when atmospheric conditions are favorable, and not a disease of the plant tissues generally.

I have just returned from Washington, D. C., where I have been spending a few weeks, partly in pursuance of certain entomological studies in the museums of the Department of Agriculture and the Smithsonian.

Am not at all well, and fear that I shall not be able to attend the meeting of the society at Louisiana, as I at one time intended. If I am able to do so, will send a few notes directed to you at Louisiana, but do not be disappointed if I do not.

Yours respectfully,

MARY E. MURTFELDT.

WARRENSBURG, Mo., May 5, 1886.

L. A. Goodman, Esq., Secretary Missouri Horticultural Society :

DEAR SIR—Your esteemed favor of yesterday is received. Owing to the fact that our school closes on the 10th of June, I will be unable to attend your meeting at Louisiana, Mo. I greatly regret this, as it would give me great pleasure to attend your meeting, especially as this session is to be held at my old home.

Wishing you God speed in your good work, I remain,

Most respectfully yours,

GEO. L. OSBORNE.

SARCOXIE, MO., June 7, 1886.

Mr. L. A. Goodman, Secretary Missouri State Horticultural Society:

DEAR SIR—Herewith find \$1.00 membership fee.

Have also, with this express (prepaid), sent a bale of trees from our cool storage building for exhibition. In bale you will find 2 bundles peach, 1 bundle apple, 1 bundle climbing roses, 1 bundle peach in dormant bud, 1 bundle apricot, 1 bundle catalpa—the above-named stock was placed in storage during November and December, 1885; also, a bunch of catalpa (injured in top, but roots sound) which were placed in storage December, 1884, and have been kept over to present time as shown. All stock was kept in storage without use of moss.

At close of meeting divide stock with members that may desire to try stock at this late in the season.

Sorry we could not arrange to be with you at the meeting, which is owing to one of our firm having to make a trip east, and has had to start several days ago in order to make the desired points before reaching Washington on the 16th, for Nurserymen's Convention.

Wishing the meeting at Louisiana a success,

Yours truly,

JAMES B. WILD & BROS.

ST. LOUIS, MO., May 10, 1886.

DEAR SIR—I am afraid I must beg off again. I go east a few days after your summer meeting, and I shall be very busy for the last week or two before leaving, I am afraid to even undertake the committee report that I owe in return for the compliment of a place on the Committee on Fungi, as I have yet too little knowledge of the subject in Missouri, and besides am much pressed for time.

Believe me, yours truly,

WM. TREALEASE.

SOUTH HAVEN, MICH., May 25, 1886.

Secretary L. A. Goodman:

DEAR SIR—Thanks for programme of your summer meeting at Louisiana, which I doubt not will prove interesting and profitable. I would gladly be in attendance, were it possible, but I will be confined at home by duties in connection with the summer meeting of our State society, which is to convene at Lansing on the 15th and 16th of June.

The present prospect here is for a full crop of small fruits. Strawberries will probably commence ripening very soon after June 1st. A heavy crop of the larger fruits is in prospect, especially peaches which

will require severe thinning. Everything hereabout two weeks earlier than last year.

Yours truly,
T. T. LYON.

LENOX, IA., June 2d, 1886.

Mr. L. A. Goodman:

DEAR SIR—Your circular at hand. I would very much enjoy meeting with Missouri horticulturists at Louisiana, Mo., on the 8th and 9th. My meeting with your society at Warrensburg last winter will long be remembered by me, and I shall continue to hold pleasant remembrances of the membership of your society. The great distance, time and expense required to attend your coming meeting deters me from attending.

This is a busy time for Iowa horticulturists, with strawberries giving us full picking at least two weeks earlier than ever before.

I would write more, but realizing you must be busy preparing for meeting I desist.

With kindest regards for you and Missouri horticulturists, I am,

Yours truly,
GEO. VAN HOUTEN.

REPORT OF THE COMMITTEE ON STONE FRUITS.

Mr. Madinger—The plum crop promises good and we have a good crop of cherries, even of the sweet ones.

Mr. Dalton—I have some Wild Goose trees and the prospects are for a very fair crop and fine specimens of the fruit. In my locality the plum crop gives promise of being quite abundant, not only of Wild Goose but other varieties which I have examined. I am somewhat enthusiastic on the plum. I have 700 to 1,000 trees fruiting. So far as my experience goes my Wild Goose, eight years planted, have been very productive since the third year after planting. The curculio is very bad. To the Wild Goose it has done little damage, to other varieties it is very destructive. I have been trying to protect other varieties by methods of my own. I have had some good results. I hang

lamps in the trees over a dish of water, and I find a large number of insects in the water in the morning. I also shake the trees every morning. I have been keeping it up ever since they dropped their bloom, and I believe it will be successful. The Wild Goose is very able to take care of itself; they are stung but not hurt, the wounds are not fatal.

Mr. Erans—What kind of insects do you find in the water?

Mr. Dalton—I catch millers like the common candle fly and an insect somewhat like the wasp. I am not versed in "bugology," so I can not give the names. Along about the latter part of May or first of June the insect which comes earlier disappears, and I find a smaller insect.

Mr. Thomas—What distance apart are those trees?

Col. Reynolds—Twelve feet each way, upon bottom soil. They grow very large and support each other.

Mr. Thomas—On what root are his Wild Goose?

Col. Reynolds—Peach roots.

Mr. Erans—I would like to find out about those cureulios. Do you know him when you see him?

Mr. Thomas—I find the insects upon the trees but never find them at work. When I shake the trees I find these insects. It hides when I shake the tree.

Mr. Erans—What does he look like?

He is a very small insect, somewhat like a turtle—plays possum when he falls. When he gets warm he flies.

Mr. Thomas—To conquer we must either feed the curculio or catch him. He will eat the Wild Goose, but if we plant the fine tender varieties he leaves the Wild Goose for them. If we have the Wild Goose alone we get but little fruit. So the cabbage is safe if planted with tomato vines.

Mr. Dalton—I plant Wild Goose exclusively and never fail to raise them without planting other varieties.

Col. Reynolds—How does the gentleman cultivate his plum orchard?

Mr. Dalton—Hogs and chickens, no cultivation.

Mr. Goodman—The gentleman perhaps never caught a cureulio. The only way to catch them is on a sheet, you can't find them on the ground. His work has not been effective in saving his plums. The millers he caught would not have affected the plums. They might have affected the apple but not the plum. The cureulio will soon fly if left on the sheet. We carry a can of coal oil and pour them into it.

Mr. Thomas—Wild Goose needs a fertilizer.

Mr. Durand—I have no trouble to get them to set fruit, but it always comes off before it gets ripe.

Mr. Dalton—Does the curculio fly or crawl?

Mr. Goodman—He flies in the heat of the day. In the morning he will drop and roll himself up. What have your trees paid you?

Mr. Dalton—Eighty-five Wild Goose have paid from \$250 to \$300 per year. They occupy about one-fourth of an acre.

Mr. Goodman—I can not imagine how the gentleman gets any plums at all with such close planting.

Mr. Stark—The plum is of a social nature. Wild plums grow in thickets.

Mr. Speer—It wont do to depend upon chickens if you have only a few plum trees and many curculio. I will plant quite thick and an assortment of many kinds.

Mr. Evans—If you will go into the chicken yard and jar them down early in the morning the chickens will catch them.

Mr. McIntyre—I have succeeded in raising plums—more Wild Goose than anything else—without catching the curculio. My Wild Goose have not failed since the second year.

Mr. Durand—Will the chickens eat the curculio? Prof. Riley says they will not.

Mr. Demming—The impression seems to be that whether we raise one tree or a hundred the curculio will follow in the same proportion. I thought a few years ago I had a remedy by smoking the trees every second night with coal tar, but that has failed.

Mr. Bayles—I can't see why we should be content with the native plums. They are growing the foreign varieties in New York state with great profit, and why should not we do the same thing? It takes but two or three weeks, catching the curculio every morning, to insure a crop.

Mr. Dalton—At what time does the curculio commence and how long does he continue?

Mr. Thomas—As soon as the plum drops its blossom and as long as he can punch the skin.

REPORT OF COMMITTEE ON NEW FRUITS.

BY F. LIONBERGER OF NEW FLORENCE.

To the President and Members of the State Horticultural Society:

LADIES AND GENTLEMEN: The testing of new fruits and the management of experimental grounds is getting to be a matter of great importance. It is a well known fact that the science of modern horticulture is progressing very fast in most of the countries of the old world. Nations that have been in the habit of importing a portion of our surplus fruit, as well as from other countries, are leaving no stone unturned to further their horticultural interest, as to not only supply their own wants, but to export to other countries fruits of various kinds. It is therefore a very important matter for us not to stand still, but to push onwards, to improve our fruits, and to introduce such new ones that have proved worthy, *but no others*, and these only through a proper channel, so that we will be able to compete with fruits from other countries in foreign markets. Unless such is done to as great an extent as possible, we will in a few years not be prepared to keep up our good name for choice fruit, which the fruit growers of this State have earned during the last few years.

I have of late been corresponding with fruit growers of southern Europe, and find that they are a great deal better organized than we are, to test their new fruits and new methods and to get their fruits in shape ready for the export trade.

For instance at Zurich an experimental station has recently been established and is now worked according to the following plan: Each Kanton or State sends from one to two delegates which are the best experts to be found, I may here mention that my information was received from one of these experts, a delegate from the Kanton Bern.

Last March these men thirty or so in number spent three weeks and one-half at the station, where experiments of all kinds were made and theory was combined with practice. One full week was spent with dwarf trees, such as pyramids, espaliers, etc., etc. Next August they will again meet for one week, when their attention will be given to budding and the summer management of trees. In the fall they will meet for three weeks, when each delegate will not only be

invited, *but requested* to bring specimens of all kinds of fruits from his locality. Comparison will than be made and a list of fruits best adapted to each locality, made out. In connection with the experimental ground is also a large factory, where experiments are made with all of the most approved machinery and methods for the preparation of the different fruits for market, in all the different ways, such as canning, evaporating, making apple-butter, cider, jellies, etc., etc. Now this is the way they are organized in Switzerland. Other countries are taking steps in the same direction. France takes the lead in horticultural pursuits, we have no doubt, for they are as well organized as Switzerland, perhaps better. Such organizations as the above are bound to attain good results. But where are we? Can we afford to stand still and to be left behind in the race? I think not, but must push onward and show the world at large that we are yet alive and intend to maintain the good reputation, which the fruit-growers of this State have established. They tell me in Europe that our apples, such as the Baldwins, Jonathan, Golden Pippins, etc., are far behind their best sorts, both in quality and appearance at the same time, they admit that we are their superiors in marketing or preserving fruit; but they think the case will be different in a few years: yes, if we would stand still, but let us show them that such will not be the case.

I am sorry to have to state that it was not possible for me, to give this subject the attention it ought to have received. My secretarys work for our local society as well as my private correspondence of late was of such a nature that, I had but little time to devote otherwise. I have learned from one of my associates, Mr. Gilkeson of Warrensburg, *that he* was very unfortunate having a great injury done to his fruit plantation by a very destructive hail storm. As to new fruits he has nothing to report, except that he thinks a great deal of the apple, which originated in his locality. The other member of the committee, Mr. Stark, is present and will be able to take care of himself.

The paper which I did prepare is worthy, upon the importance of improving our fruits as well as the best methods for preserving, I hope however, that you will excuse the shortness of my paper.

History of the Logan, Uthlout, Hornet and Logans Late Apples.—In the year of 1806 or 1807, a number of emigrants came (through the influence of D. Boone) from Flemmen county, Kentucky. One Jonathan Bryan brought with him a quart of apple seed which he planted for an orchard; he had the first orchard known, from this orchard or seeds sprung up the varieties above named. One tree, the *Logan* is the only original tree that is left, the trunk has a circumference of 9 feet close

to the ground, higher up it is 8 1-2. I had the ground stepped off that the whole tree covers, and it was found to be 22 large steps one way and 18 another. The tree seems to be good for a number of years yet. And if it was pruned and a few dead limbs cut out would produce fruit a great deal larger. The first apple always gets ripe about the 4th of July, and from then until October, it ripens its fruit gradually. At present there are a number of green apples on the tree. They tell me that it has never missed a crop, it bears every year, but that the first used to grow a great deal larger.

The *Uthout* has come out of the same orchard, a sprout being set out. The original tree is dead, the trunk still lays on the ground, it is very large.

The *Hornet*, a sprout taken out of the above orchard, called the Hornet, because some boys while stealing apples in the early days came in contact with a hornet nest, which was in the tree.

The *Logan's Late* is claimed to be the finest of all. A large to very large fine winter apple of the best quality, nearly red, very handsome. It was also raised from a sprout out of the same lot. I could not secure specimens, the apples being to green yet, I will have some ready for the annual meeting of our State society.

Smilys Red was raised from seed by Col. Smily of this county and afterwards propagated by Phil. Nichols, a local nurseryman. It is found all over this county and is highly esteemed for drying purposes, as well as for the desert. There is a great demand here for the tree.

F. LIONBERGER.

DISCUSSION.

Mr. Bryant.—We have some new fruits in Illinois, but I have not much new to say of them. The strawberries I brought you have seen. You have probably heard of my new apple. It is now doing well and we shall have some fruit to exhibit this fall.

Mr. Goodman.—Is the Salome perfectly hardy?

Mr. Bryant.—Nothing else is.

Mr. Goodman.—Is it hardy in this latitude.

Mr. Bryant.—It is with us. In some localities it has suffered. It is not perfectly hardy. The Duchess is not.

Mr. Brown.—Mr. Bryant says nothing is perfectly hardy. Every tree agent has them perfectly hardy and iron-clad clear through. (Laughter).

In reply to an inquiry Mr. Bryant said that the Crescent was both earlier and later than the new strawberry he had on exhibition. Buebach's No. 5.

Mr. Burrows.—We don't seem to get at the introduction of a new variety in the right way. If a man has a new variety he should send it to persons in various parts of the county under restrictions. The first question asked of a new fruit is, will it do well in our locality and soil? The State society might take hold of the work, test and pay the originators of new and worthy fruits and let them go at once to the people.

Mr. McIntyre.—I have been in the fruit business for several years and have been trying to get the very best. I have tried many new kinds, but I have got tired of it. If I try to buy everything new that comes out it will take all I can make. Every man blows his variety up as the best. I had about concluded to buy no more new fruits. I have had thirty or forty varieties of new berries, but have discarded most of them. Among the strawberries Jersey Queen bids fair to do well. I have planted mostly of the Gregg raspberry. It is large and good for market. The Souhegan promises well. The Hansell is one of the earliest I have. I like the Brandywine better than the Turner. The Hopkins does well as far as I have tried it. The Marlboro is not hardy. Prunus Simoni seems very hardy, being green to the tips. The Mariana plum is very hardy.

Mr. Bayles.—Who has fruited the Ostheim Cherry? Is it hardy?

Mr. Patterson.—We have Ostheim from Prof. Tracy. It ripens with the Early Richmond.

Mr. Goodman.—The Ostheim is almost exactly like the English Morello and ripens between the Early Richmond and the English Morello. It is very valuable, hardy and prolific.

Mr. McIntyre.—What effect does the stock have upon the cherry? With me the Early Richmond is dying out upon Mahaleb stock.

Mr. Lionberger.—The Early Richmond upon the Common Morello seems to do better.

Mr. Brown.—The ⁵Morello sprouts. I cannot sell trees upon it.

Mr. Ragan.—I have Early Richmond seventeen years upon the Mahaleb, also some trees upon their own roots. It sprouts, but makes the most permanent tree we have. The sprouts made good trees.

REPORT OF SECRETARY.

WESTPORT, Mo., June, 1886.*Members of the State Society :*

Another semi-annual meeting are we glad to greet you. Coming here where some of the oldest and most notable horticulturists of our State have lived, we are glad to see many new faces. This very city is the place where lived one of the foremost horticulturists of our State, and one of its most earnest workers. The first time I met with this society I can well remember the form and appearance of Mr. Stark among them, and his earnest labor for the advancement of our cause.

Horticulture has marched forward with many strides since then, and yet it has just opened up a field that has hardly been entered. We have the insect life to grapple with, to learn which are our friends and foes, as well as how to destroy one and preserve the other. We are testing the use of poisons on them to learn their efficiency, and with very satisfactory results.

The growth of our troubles and discouragements have kept pace with the advance of civilization, and we have to adopt new methods and plans, and we have to study closely these troubles in order to overcome them.

The use of Paris Green for our worst apple foe, the codling moth, the jarring process for our cureulio and gouger. The pyrethrum powder and the spraying with tobacco for many forms of insect life are efficient and very efficient remedies.

The birds of our State need a careful study to be sure which are our friends and which our enemies. Prof. Forbes has made a speciality of this work, and we are beginning to see the great value of our native birds to the fruit growers. The birds always considered friends are now much more so, and are a necessity to every fruit grower.

We can raise our voices earnestly against the wholesale destruction of these valuable friends in every neighborhood, not only by the careless boys who shoot for fun, but by those who kill for money and the adornment of our ladies' hats. Let us protest against this wanton destruction. Let us enforce the law we have, and allow no one to shoot, in our neighborhood, any of the native bird kind, at any time. Let us talk it and preach it at all times, keep it continually before the people and put a stop to this massacre.

Only one of the bird kind should be completely destroyed, and that is the English Sparrow. Its utter uselessness and pure cussedness is conclusive that it should be exterminated.

Rusts and mildews are subtle enemies of our fruit growers, and how to battle them, or how to avoid them, can only be known when we know more of them. A new field has been opened to our scientists, and they are studying this life closely. It is a life study, and it will be some years probably before we can understand them. But we are learning rapidly, and it is to be hoped we may find the causes of these dread foes and remedies to counteract them.

The extreme winters of the last few years have played sad havoc with many of our trees, and the peach will have to be replanted before we can expect a crop of peaches again. Our old trees are nearly ruined and only those under three or four years planted can ever make healthy trees. And, although the outlook is discouraging, still I believe the fruit grower is no worse off than many other class of men. The peach is easily and quickly grown and we can plant again. In fact, in order to have the best results we must plant them continually; every year must see a few trees or a new orchard planted.

Our apple trees have come out of the trial conquerers. We have this year a wonderful show of fruit, and the only thing to fear now is that our trees will carry too big a load and cause the same trouble of two or three years ago. I tell you friends, we must thin our crop of apples if we would not have a repetition of the failure of our trees, and of winesap especially.

Our small fruits, although injured somewhat, yet we are satisfied with the results, and the vines are soon replaced. What we need is some good blackberry of good size and quality that will not rust and is hardy.

OUR REPORT.

Our report has been delayed by the State printers, and instead of having it in April we have just received it now in June. I believe it to be the most valuable of any one yet published, not only for the reports, essays and discussions, but because of the "Flora of Missouri, an appendix by Prof. Tracy." He has been busy on this for years and it is the only complete or nearly complete list of plants of Missouri ever published. What it will accomplish in the march of horticulture time will show. More complete arrangements should be made if possible so that we can get our report earlier. The manuscript has been

ready since January, and in spite of all I could do, I could not get it out sooner because of the State printers failure to keep their promise.

Could we not get in our appropriation enough money to pay the printing bill and then get it out at once after our winter meeting? Or better still if we could have this report printed at once after each meeting and then held until the annual meeting and completed then? We would not have so much of the printing to be done at one time and would expedite the matter immensely.

Our society, I believe, should be incorporated and become a part of the State organization.

The committee appointed on "needed legislation" will have a work to do next winter, for we must have our scope enlarged and our powers increased thereby. Having an increased appropriation is the surest and best means of doing it. We are far behind in our allowance in comparison with other States, and too much of this work has to be done freely. Let us ask for as much as any other state, and ask firmly and we will get it. Missouri is becoming noted as a fruit state, our industry is growing rapidly, let us make our demands for our rights and they will be granted.

The future of the apple region of the west is in eastern Kansas, all of Missouri and north Arkansas, and is of such importance that we need to make every effort to bring the advantages of our State into prominence.

The Missouri Fruit Show, which probably some of you have heard about is one of the means of making this record of advantage to the State. It is not yet decided, but must be at this meeting. President Evans and myself have been to St. Louis to confer with the directors and have now a definite proposition from them, as follows:

ST. LOUIS, May 26th, 1886.

L. A. Goodman, Esq., Secretary Missouri Horticultural Society:

DEAR SIR: Your communication noted and referred. This association will offer amount of premiums named—\$800. Will set apart a building for same, to be used in conjunction with a floriculture display; will furnish plates for fruit, two carpenters and necessary lumber for two weeks prior to fair. Tickets for awarding committees, officers of State Horticultural Society and committee of three from each county to the fair, and aid you in securing passes over railroads in the State for your officers to work up the fruit show.

This offer to hold good for acceptance or rejection for ten days from date. By order of the president.

Truly yours,

FESTUS J. WADE, Secretary.

ST. LOUIS, June 3, 1886.

L. A. Goodman, Esq., Secretary :

DEAR SIR—Yours of the 1st noted. We have accepted your proposition as submitted by Mr. Evans and yourself on the occasion of your visit to St. Louis, and think we have done our duty in the premises.

While it costs you \$1,000 as you say to make the show, it must not be forgotten that our premium money is the smallest part of our expense.

I think that the amount we have offered is reasonable, equitable and proper.

Yours truly,

FESTUS J. WADE, Sec'y.

This is not what we wanted or asked of them, in fact only one-half of the desired amount, but whether the money justifies the show or not it is for you to decide. An immense amount of work is before us if it is done and the money will hardly pay expenses, yet we often times make these exhibitions and never make any money. The object is to bring out the advantages of our State to the fruit growers and show what each county can do.

The list of premiums offered will be as follows: The State is divided into two sections, north of the Missouri river, \$125, \$100, \$75, \$60, \$40; south of the Missouri river, \$125, \$100, \$75, \$60, \$40.

Our local societies are becoming more and more interested in this whole horticultural work and I hope to see the time when we can have one in every good fruit country or fruit district in the State. The same old recommend still holds good, that our officers should visit these whenever they can find time, or rather they should visit them some time during the year, and besides this we should have them make a speciality of organizing others and get them at work.

If this fruit show is made, then will be a good time to start the work of organization in earnest, for by this means only can we make a success of it. Some one must interest the people enough to start the ball and then our officers must help in the organization of local

societies. If we can get some twenty or thirty county organizations by the means we can soon let the world know where our fruits are.

I state the fact none to strongly when I say, that the best means of advertising our State as a fruit State, is through local societies.

One society in every county would bring hundreds of buyers to your locality for fruit.*

L. A. GOODMAN, Sec'y.

OUR PREMIUMS AT NEW ORLEANS.

I have received the following circular concerning the premiums and medals at the World's Fair or World's Swindle. I do not believe in taking one-half of the premiums and then have a bronze or silver medal given for the gold medal, etc. etc. If we could get our medals it would be some satisfaction.

OFFICE OF WM. H. H. JUDSON, 38 NATCHEZ ST., }
NEW ORLEANS, May 27, 1886. }

DEAR SIR—The final sale of the effects of the American Exposition to meet the claim of the World's Exposition, under the order of the court, has been concluded. The sale under the order was on a twelve months credit. The result of the two sales lacked thirty thousand dollars of reaching the appraisement. The Main Building, which costs \$480,000 to construct, brought \$9,000. The Government building, costing \$275,000, brought but \$4,000, and this on a twelve months' credit.

While I still hold to the belief that the Worlds' Exposition will, in the end, pay in full, or very nearly in full, all liabilities; yet the delay and uncertainty as to the time of settlement and payment is discouraging to premium creditors, and many have proffered to take fifty per cent. of their claims in order to immediately realize, especially if they could in addition secure diplomas or official certificates, of each award, and the issue of medals.

Representing already premium creditors to the extent of one-fifth of the premiums due, I am satisfied that with still further co-operation on the part of creditors, I can obtain a settlement on the basis of fifty per cent. cash on the amount of your approved premium claim, to-

* At a meeting of the Executive Committee called at this time, it was decided not to make the effort to hold a Missonri Fruit Show because the inducements were not sufficient.

gether with the issue of the diplomas or certificate of each award made to you, and of the official bronze medal where medals were awarded.

I remain yours, etc.,

WM. H. H. JUDSON.

AUTHORITY TO COLLECT PREMIUMS AWARDED BY THE WORLD'S EXPOSITION, NEW ORLEANS.

_____ 1886.

Wm. H. H. Judson, of the City of New Orleans, is hereby authorized to accept for us and in our behalf fifty per cent. of the cash premiums awarded and due to us by the World's Exposition, in full of our claim, and to receipt for the same; said Judson is further authorized to secure the issue to us of proper official certificates or diplomas of said awards and the issue of the official medal, where awarded. Ninety-seven and one-half per cent. of the amount coming to us under this authorization is to be paid said Judson in exchange on New York, payable to our order, the balance as desired by said Judson.

WITNESSES:

OUR WORK AT WARRENSBURG.

The planting so well organized and begun at our normal school was a work in the right direction.

Our nurserymen took hold of it well and many thanks are due them for their good deeds.

Prof. M. G. Kern has given a plan of the grounds and planting to be done and desires it to go as a gift of the society. All thanks are due him for this upbuilding of tree-planting and ornamentation.

A few such gifts by our society to our public institutions and we shall become noted.

If possible to publish this plan in our report for 1886, it will be done.

HONORARY ROLL OF NURSERYMEN AND LIST OF TREES FURNISHED.

LAMAR NURSERIES.

One Sweet Gum, 4 feet; 1 Mountain Ash, 5 feet; 2 Tulip trees, 6 feet; 2 Russian Malberry.

C. H. FINK & SON.

SUNNYSIDE NURSERY, GREENCASTLE, IND.

Two White Pine, 2 Hemlock Spruce, 2 Balsam Fir, 1 Cutleaved Weeping Birch, 1 Laurel-leaf Willow, 1 American Weeping Willow, 2 Japonica (shrubs), 2 Carolina Poplar.

W. A. WORKMAN.

SPRINGFIELD NURSERY.

Two Liquid Amber, Sweet Gum; 2 American Sweet Chestnut; 2 Dwarf Chestnut, Chincapin; 2 English Horse Chestnut; 2 English White Birch; 2 English Walnut; 3 Magnolias, 3 varieties; 3 Catalpa, 1 Speciosa and 2 dwarf varieties; 2 English Mountain Ash, 1 Weeping; 4 Elms, of as many varieties; 2 English Larch; 2 Ash-leaf Maple; 2 Silver-leaf Maple; 2 Scarlet Maple; 2 Hard, White or Sugar Maple; 2 Willow, 1 Golden and 1 Laurel-leaved, and 1 English Alder.

D. S. HOLMAN.

KIRKSVILLE NURSERY.

Four Wite Pine; 6 Scotch Pine; 6 Red Pine; 6 Tom Thumb Arbor Vitæ; 6 American Arbor Vitæ; 2 Compasta Arbor Vitæ; 2 Siberian Arbor Vitæ; 6 Norway Spruce; 2 White Spruce; 4 Hemlock; 2 Red Cedar; 6 Balsam Fir; 2 cultivated Sumac; 3 Snowberry; 3 cultivated Elder; 3 Varigated Elder; 3 Josika Lilac; 3 Flowering Quinces; 2 Spirea Billardii; 2 spirea Salicifolia; 2 spirea Douglasii.

CHAS. PATTERSON.

WESTERN IOWA HORTICULTURAL SOCIETY, LENOX, IA.

One Tree Spirea; 1 Swowball; 2 Russian Mulberry; 2 Syringa; 2 Scarlet Trumpet Honeysuckle; 1 Kentucky Coffee; 1 American Birch; 1 White Poplar; 2 Purple Lilac; 2 Barberry; 2 American Arbor Vitæ; 2 Red Cedar; 2 Norway Spruce.

G. VAN HOUTEN.

SARCOXIE NURSERIES.

Two Rufa Ash; 2 Sharp-leaf Ash; 2 Imbricated; 2 Wier's Cut-leaf Maple; 2 White Ash; 2 Punctata; 2 Norway Spruce; 2 White Pine; 2 Scotch Pine; 2 European Larch; 2 Arbor Vitæ; 4 Sweet Gum; 2 Teas Japan Catalpa; 2 Variagated Catalpa; 2 Umbrella China; 2 European Birch; 2 Cedar Elm; 2 Burr Oak; 2 Tulip trees; 2 Wisconsin Willow; 1 Weeping Cornus; 2 Cornus Florida; 2 Snowball; 2 Prairie Queen Roses; 2 Baltimore Belle; 4 White Elm; 2 Russian Olive; 2 Red Elm.

J. B. WILD & BROS.

STARK NURSERIES, LOUISIANA, MO.

Four European W. W. Birch, 8 to 10 feet; 4 Catalpa Speciosa, 6 to 8 feet; 4 European Linden; 4 Norway Maple, 4 feet; 4 Oak Lf. Mountain Ash, 3 to 4 feet; 4 Poplar Lombardy, 8 to 10 feet; 4 Tulip Tree, 2 to 3 feet; 4 Weeping Willow, 4 to 6 feet; 4 Am. Arbor Vitæ, 2 to 3 feet; 4 Pine White, 2 to 3 feet; 4 Pine Scotch, 2 feet; 4 Red Cedar, 3 to 4 feet; 4 Althea, Double; 4 Berberry, Purple; 4 Deutzia Crenata; 4 Enonymus, (Strawberry Tree); 4 Purple Fringe; 4 Philadelphus; 4 Spirea Billardii; 4 Spirea Prunifolia; 4 Spirea Lanceolata; 4 Viburnum Lantana; 4 Viburnum Snowball; 4 Honeysuckle Halleana.

STARK BROS.

Now a word for our experimental forest at Nevada. Every member should use his influence to have that planting a model of what forestry can be and will be some day in this country. The time is coming not when we must stop cutting down trees, but when we must plant a forest all over our land. I am no sympathyzer with this cry of "stop cutting the trees," for that is what they were made for. But I am in earnest in the cry of "plant forest trees"! plant them everywhere they will grow, take care of them; plant! plant! plant! the time will come when they will bring blessings and money too.

The American Horticultural Society holds its meeting at Cleveland in September, and some one should go there with a collection of fruits.

The American Association of Nurserymen meet at Washington on June 16 to 19, and no doubt but many of our nurserymen will be there as they should be.

The American Association of Florists meet at Philadelphia in August, and we trust our society will be well represented there also.

The next meeting of the American Pomological society meets at Boston in September, 1887, and some of us will be there.

It seems to me that some of these should come farther west and St. Louis or Kansas City should be a meeting point for them next year.

AN ENTOMOLOGIST.

Why cannot we have one? We must bring every effort to bear at our next assembly to have an appropriation set apart for the pay of a good worker. How much we need it you all know, and a few hundreds of dollars cannot be so well spent as in finding out our insects foes and the remedies. Miss Mary Murtfeldt is a great worker in this direction, and if nothing more than a thousand dollars could be had, it would be well spent in getting her to use it in her study.

AN HORTICULTURAL LIBRARY.

I was in hopes that we could have used our premium money in the purchase of a library for the use of our State society, but that failing, I think we should have a hundred dollars or so spent for the best works on the subjects desired, and have for the use of the members; nearly every State society has one and they find it very valuable.

THE NEW APPLES.

At the head of this list stand the "Gano," a beautiful red apple of large size, good quality, hardy and productive. Last year the trees gave an abundant crop of fine apples.

The "Shackelford" still promises well and is said not to be the Ben Davis. The growth of tree is different.

The Loy, Lukes Silver, Howell, Rankins, Freeman are still promising.

A new apple which was shown for the first time at Warrensburg of an especial coconut flavor and size, color and beauty of Grimes will be watched closely another year.

OUR WORK

As in the past must be an onward and upward one; we must let no opportunity pass for the advancement of knowledge and improvement of our cause. To accomplish this we need members, working members in every part of the State.

The improvement of our grapes are being made by our grape men at St. Joseph and Morrison. If we can get a grape as hardy and free from rot as the Nortons, and as good as the Goethe, we will accomplish much of that part of our work.

HORTICULTURAL JOURNALS.

It is the mission of our society to induce every fruit grower of the State to take some good paper. It is an impossibility for any one to keep up with the times unless he does. Take papers and read them.

And now in conclusion we have to congratulate you upon the successful meetings held during the last two years. And this one in particular we are glad and happy to see so many of our friends with us at this buisy time. We are sure that you can look back over the last year as certainly an advance all along our line, and now we have many imbued with this horticultural enthusiasm which knows no such thing as failure. New men and new women too are becoming workers with us in the cause we love.

L. A. GOODMAN.

REPORT OF TREASURER.

Z. S. Ragan to account with Missouri State Horticultural Society.

December 10, 1882, warrant No. 75, postoffice bill.....	\$50 97	\$626 38
February 16, 1886, warrant No. 74, printing bill.....	33 00	
February 28, 1886, warrant No. 76, P. O. bill for Jan. and Feb.	12 54	
February 28, 1886, warrant No. 77, Expenses Jefferson City, Express, &c.....	30 60	
March 15, 1886, warrant No. 78, telegram and express on re- ports.....	26 90	
April 30, 1886, warrant No. 79, P. O. bill for March and April	10 01	
May 5, 1886, warrant No. 80, R. R. certificates and express on fruit.....	13 75	
May 15, 1886, warrant No. 81, Evans, expense to Warrensburg tree planting	11 80	
May 15, 1886, warrant No. 82, Farey's bill for printing; and cold storage	15 60	
May 15, 1886, warrant No. 88, trip to St. Louis....	28 00	
June 1, 1886, warrant No. 85, P. O. bill, wrapping paper.	16 95	
June 8, 1886, warrant No. 84, Secretary's salary, six months...	250 00	
Total.....	\$500 12	
June 8, 1886, received for membership		48 00
Total.....		\$674 38
June 8, 1886, leaving a balance in the treasury		174 26

Respectfully submitted,

Z. S. RAGAN.

The Committee on Finance have examined the Treasurer's report, and find same to be correct.

J. A. DURKES,
J. MADINGER,
W. P. STARK.

REPORT OF COUNTY SOCIETIES.

Mr. Lionberger, Secretary of the Montgomery Society—This society is a new one, but we have done much good. We began at a school house,

but now we are invited to meet in the towns of the county, sometimes by three or four at once. The press has tendered us the use of a column, which we have accepted to some extent.

Mr. Patterson—We have no society in Adair county. We have about forty acres in small fruits, nearly all for the home market.

Mr. Bayles—We have no organization in St. Louis county. I do not know that we have anything special to report. The strawberry crop has been abundant, and the prospect is good for raspberries. The cherry crop is good; pears, fair.

REPORT
OF
BATES COUNTY HORTICULTURAL SOCIETY.

BY SECRETARY H. SPEER, OF BUTLER.

To the Officers and Members of the State Horticultural Society :

As secretary of the Bates County Horticultural Society, I have the honor to report our society in good working order, with sixty-five members, a goodly portion of whom are live, active members. The interest in our meetings is steadily increasing, and its membership extending to all parts of the county. The winter meetings are held at the county seat; the summer meetings with the members in different parts of the county, prove very pleasant in a social way, and a great deal has been learned by inspecting the success and failures of the different members as illustrated by different methods, and on different soils and exposures. We have one or more papers read at each meeting, upon subjects of interest, some of which have been of a high order, and all calculated to instruct. The cream of the meetings, however, comes in the discussion of the various subjects presented. If nothing more was gained at the meetings, the horticultural zeal inspired by these meetings would be ample compensation for all trouble. My prediction is that our society has come to stay, and will live after its projectors have passed away. And, taking a retrospective view of our successes and failures, I see no good reason why, with the proper effort we may not have a live local society in nearly every county in the state. Then will the state society assume its proper position, and become the power for good which it should be, and which we hope to see it in the near future. Our society desires to acknowledge its obligations to the state society

for many benefits derived from our connection with it, among which is the fact that we have had several fruit buyers sent to us which otherwise would never have heard of us, and as a matter of course have received better prices for our fruit.

The present outlook is favorable, and the future of horticulture is bright in our county.

HENRY SPEER, Secretary.

REPORT OF GREENE COUNTY HORTICULTURAL SOCIETY.

BY SECRETARY D. S. HOLMAN, SPRINGFIELD.

Officers and Members Missouri Horticultural Society:

We respectfully report Greene County Horticultural Society to be but little changed since our last report—still living and working a little; membership increases some monthly. We have now several good members from the old Missouri Valley Society. Acquisitions from a source of such valuable experience and success are gladly received among us.

Our monthly meetings are pretty well attended, at which we have essays and discussions upon subjects we think to be of most importance at the time. At this season our meetings are passed around to the homes of the members, and we find them thus very pleasant pleasant and more liberally attended.

Our semi-annual meeting, or spring Fair and Festival has just been held—22d of May—it was not large or pretentious but pleasant, and we hope did some good.

There is an awakening among us to the importance of employing the best methods of attaining to the prevention and cure of some of our evils and hindrances in Horticulture. As a good omen we find the public interested and some careless growers alarmed at failure and inquiring what they must do.

Our society have no library, at least only a very small one. We take Horticultural papers and read with much interest Mr. Goodmans' annual report of the workings of your society.

While our society is small, with few facilities for the use of the few in a large work, we are modestly in earnestly and think our cause ought to be, in our country and every other, recognized a fit companion among the best industries, at least of equal importance with systematic agriculture and so considered at our annual fairs or exhibitions.

We own no hall and meet under our own vines, fig trees, maples and other trees, and rejoice in our wealth of out-door room or capacity, and should any visit us at our meetings we have room enough and a welcome for all.

D. S. HOLMAN, Sec'y.

HORTICULTURE.

BY L. GEIGER, BOONVILLE.

Members of the Horticultural Society, State of Missouri :

MR. PRESIDENT—Grape culture in Cooper county, Missouri, is at a standstill. There is hardly anything to encourage it. Catawba's, which are in some vineyards predominant are all winter killed, and the same is it with the Lindley, Goe the, and some other fine kinds—Corcord, Nortons, Neosho and Elvira and some other of the Taylor Seedlings are in some localities as good as could be expected, they are healthy and full of good and sound young fruit and should the mildew and rot not affect them, they promise a bountiful harvest.

Some localities in the vineclad hills of Boonville are a total failure on account of the ravages of a little steel-blue bug, eating the

fruit bud, and that so much, that the vine looked in the month of May as dead as in winter.

In my vineyard and in the vineyards of my next neighbors there is some damage done, but not to any amount, and if the rot don't take them we expect a very good harvest of grapes.

Horticulture is an occupation as well as any other, men may engage in it, either to make a living by it or he may use it as a recreation or pleasure just as he likes, if he is otherwise so situated.

There are many who have to look at it in another light, they have to work their garden to make it more than pay a living, they must make it pay taxes and expenses and even a little more than that.

Horticulture has to be carried on scientifically, to do that; man must have a thorough understanding of the business and a practical knowledge of it, he must be industrious, economical, and above all he must have perseverance. Horticulture is a noble occupation, and the Horticulturist, in raising and improving fruit and vegetables is a benefactor to the human race. The progressive improvement in the culture of fruit and vegetables as a daily health and strength producing nourishment to human nature has made a marked sign in the march of civilization. And what is the place of Horticulture in civilization? shall be the subject before this meeting.

Ladies and gentleman, all practical horticulturists of the State of Missouri in convention assembled, I must confess I feel myself unable to do justice to such important a subject as this, though I will try to show that you need to have no fear or be ashamed of the calling, horticulturists, for horticulture stands in the foremost rank as a civilizer of the human race.

The use of fruit and vegetables as food is as old as the human race itself, and the creator as the most distinguished horticulturist did nourish his creatures on fruit, and the starving children of Israel on their march from bondage in the wilderness of Arabia on manna.

Horticulture stands as high in civilization as men stand in society. Now let us see about that. Suppose we take a walk through this beautiful city and near surroundings. Do you see that nice house half hidden by the green and shining foliage of shade trees, the well-kept lawn in front of it, now and then a stump of shrubbery, making a lovely contrast to the flower garden next to it, brilliant in high colored and sweet scented flowers? Notice the fruit and vegetable gardens, which will bountifully supply the tables. How beautifully everything is arranged, the straight walks, neat and clean, leading to the house, the straight rows of trellises, with grape vines tied to it, scenting in

blooming, and the sides overhanging with foliage shining in splendor. Look and see and wonder how well trimmed were the rows of pear trees, plum trees and cherry trees in the fruit gardens, and the orchard trees bending their branches from the burdens of leaves and young fruit. And now, again, as nearer we approach, look at the house in its new coat of paint, windows and doors in a most tasteful contrast to it, how well it is kept in repair. Look at the verandas, how neatly surrounded and well arranged with climbers, brilliant in a profusion of flowers; everywhere refinement, thrift and contentment, and who lives in such luxury? Look close and do not wonder, it is the house of a horticulturist. Let us enter the house. How kindly we were treated, how friendly, how complaisantly we were entertained by the landlord, and with a winning smile on the face of the landlady, the wife and mother of the house, we were shown their comfortably arranged apartments, suited to comfort the members of her household and calling friends. All shows neatness and taste in the house as well as outside the house.

The library contained a well selected assortment of literary and entertaining books and papers. The table in the dining room was loaded with an abundance of the choicest fruit and vegetables from the well attended vegetable garden, and the family sitting around it enjoys by good conversation the gift of their labor.

Here you find happiness, refinement and culture, here you dwell with well-bred and good mannered people, who will not feel themselves awkward in any society, who are liked wherever they go and whomsoever they meet. Now, what is their place in society and what caused them to stand so high? And just as high stands their occupation, stands your occupation, stands horticulture in the rank of civilization.

I shall not attempt to paint a picture of the reverse, you may imagine that for yourselves.

I am free to say that horticulture has done as much good in civilizing the human race as the world. Now, for instance, look upon the civilizing record of the Indians living and roaming in the western Territories of our own land. Since more than a hundred years they were visited by missionaries and teachers and taught religion and culture, and you may find some well educated heads amongst these savages, but what about their mode of living, their manner of behavior, their industries, their homes? Some of these sort of civilized Indian tribes are still as savage as they were when first found by the white men. They are taught religion and culture on one hand and use fire arms on the other. They were clothed and fed and even paid by our national

government, and what has been their progress in civilization. After such sad experiences they were taught by other kinds of teachers. They were shown how to live a happy life by tilling the ground producing their own means of subsistence, raising vegetables and eat them set out orchards and build suitable homes; they were taught to help themselves, and you observe already a marked step forward in the path of civilization. That is the work of horticulture, the doctrine to civilize successfully in modern times.

And on what place do we find horticulture in ancient times? Herodotus, a Greek historian, tells us that lettuce was a favorite dish on the tables of the most refined inhabitants of Greece and Rome, and also of other eastern nations of any renown. They were acquainted with the spinach, the asparagus and celery. Radishes were a highly prized garden truck, and were held in as high report as with us. Parsnip, which was found in the barbarous country on the river Rhine, was well known by the Roman Emperors, and had to be imported to figure as a rare esculent on their tables, as well as on the tables of Roman nobles. The beet and the carrot, the peas and the beans, cabbage and turnips were well known to most people in the ancient times, and wherever they were used as a daily food, they were a harbinger of civilization.

The fruit of the orchard and the luscious grape of the vineyards, as well as the berries which were served as desert at the sumptuous meals of the most cultivated people in early days, were they not a civilizing agent; and the man who cultured them, was he not a benefactor? And his place of standing in society was one of the foremost amongst the best cultured and civilized men of the age.

Once there was a time when the French nation was the most cultured and highest civilized people of earth, when kings and princes looked upon them as an exemplar in art, education and refinement. Tourists and travelers tell us that it is a pleasing sight to see all along on both sides of the public highways rows of fruit trees, and you may distinguish one department from another by the kind of trees planted along side the road.

The roses of Monsieur de Malsherbes, at Malmaison, are historical.

Since the destruction of the vineyards in some localities in France, their land has been planted with roses, so that you may see instead of the luscious grape, fields of roses as a source of income to the husbandman, a sign of progress in culture and civilization.

It is a commendable act of our Governor of Missouri to have a day, the 16th of April, set aside as day of tree planting by old or young,

without distinction of sex or color, whether they were landowners or not. And if you should find in the remotest spot of this earth, in the front yard of a cabin, a rose bush or fruit tree, you'll be sure that there lives a civilized man in it.

What a tempting thing is an apple or any other kind of fruit to a boy and even a girl? They will walk for miles and risk honor and reputation in the attempt to obtain it.

The apple is destined to be the most widely distributed over this globe, and it is known as the fairest civilizer. Only a small streak of land in this country is known where the apple grows to perfection, and our great State of Missouri is fortunately located in this favored belt. Hence every owner of a spot of land should use the opportunity of planting the apple tree and raise the best kind of fruit, and be a promoter in civilizing the human race.

Let us be aware that it is a noble work we have engaged in, the art to raise, culture and improve fruit, vegetables and flowers to the highest perfection and we may rest assured to have done our part in placing horticulture in the first rank of civilization.

DISCUSSION ON EXHIBITION OF FRUITS.

Mr. Madinger—We ought to show our fruit in two ways: some for quality, some for show. We should show in groups so that the different varieties may be compared or contrasted. When shown for quality, each quality should be shown by itself.

Mr. Goodman—The best way to show for the horticulturist is not the best for outside people. You may take the same twenty varieties, put them on plates on a table and also display them and they will say the latter way is the best show. Horticulturists want only the best varieties on plates correctly labeled, on broad flat tables. Mr. Madinger has made some very fine displays at St. Joseph.

Mr. Madinger—I once took it into my head to have a vase four feet square at the base and seven and a half feet high. An architect wanted seventy-five dollars for making it, but I went to work and made one for two dollars and a half, and decorated it with apples.

Mr. Goodman—Why can not we mingle our flowers and plants with our fruits when we show them? Cannot horticulture and floriculture be united—alternate groups of apples and flowers?

Mr. Durkes—Apples for a collection might be grouped in a pyramidal form with a vase of flowers or ferns at the top.

Mr. Ragan—I want to advocate the interests of the common people against the professional class at the national and state fairs. There

should be two sets of prizes, a professional list and an amatner list. I remember a show at Kansas City in which some grapes fastened to the vine with fine copper wire elicited much admiration. I am the only individual left who helped to organize the first horticultural society west of the Allegheny Mountians. I have been engaged in these fruit shows and have found that art in the arrangement goes a long way. I am pleased with the idea of plating the flowers with the fruits, and I would enlist the ladies. They have a taste that men do not. They are very successful in getting up a display.

Mr. Lionberger—Last fall we took a notion to exhibit at the Montgomery fair. We had always had plenty flowers there, but the fruits had to be put in corners and out of the way places that looked like hog troughs. We wanted more room but they could not give it to us, so we made no exhibit.

At the close of the discussion the society adjourned until 2 P. M.

WEDNESDAY, TWO P. M.

Called to order by the President.

Mr. Geo. Hussman, of Napa, Cal., being present, he was introduced to the society and he entertained the society with a few remarks about California.

QUESTIONS ABOUT THE LAWVER ANSWERED.

Mr. Durkes—The Lawver blights, bears poorly and scabs badly.

Mr. Erans—At first the Lawver was one of the finest apples I ever saw. It is supposed to be a seedling of the McAfee, which has also done badly of late years. I watched the Lawver for twelve years in succession, and during that time it did not fail to have a crop; to-day is worthless.

HOW TO TRAIN AND TREAT AN APPLE ORCHARD.

DISCUSSION.

Mr. Durkes—Many think trees should not be pruned at all, whether that can be done or not is a good question for discussion. I think we need judicious pruning from time to time. Let some of those who believe in no pruning express their opinions.

Mr. Burrows—I wish the house was full of those who would do no pruning. Mr. Holman struck the key note when he said it took labor to raise an orchard; but a great deal of the labor is put upon orchards that is not necessary. I have often had people to say "how deep shall I set these trees"? Now, a tree should not be set in like a gate post, but only about as deep as it grew in the nursery. If the ground needs draining drain it with tile. If not with tile, then ridge it before the trees are planted. Some plow to the trees after setting, putting the roots low in the ground below the action of the sun and air, making them slow in bearing and slow in growing. The ground should be cultivated with some hoed crop till they come into bearing. If you don't want a hoed crop then don't plant anything, but only cultivate. If the trees were properly formed before planting never touch them with a knife. If you begin you have laid out a life long job for yourself. What with the water sprouts? Trimming produces them; without trimming you would not have them. It is very common for a man who goes among little trees to have his knife in hand. He seems to itch to cut something. To such a man I would say, leave your knife at home or take a stick to cut. Cutting even a small limb will make a water sprout. My advice to all planters is: "Don't touch the tree after planting." I want to impress that upon your minds. The tree will open as the fruit develops; it will take care of itself. The tree will prune itself, and many little limbs will disappear, die and drop away. When the trees get old, decline and die plant new orchards and get the old ones out of the way.

Mr. Durand—There are extremes in anything: not any and too much pruning; and the worst is too much. I knew a gentleman in our country who had a fine orchard which should now be in its prime. It has pruned itself; and it has pruned itself to death. I believe we should do just as little pruning as possible to keep the tree in shape. It is

very little work to prune a tree three or four time a year, cutting surplus limbs before they get large.

Mr. Erans—Just here I would like Mr. Holman to tell about his neighbor Hazeltine's orchard.

Mr. Holman—We can see in that orchard the lack of size in the fruits. The last season they sold a great many apples as cider stock. The old man has a son who gets better apples than his father, but he varies the treatment a little. He is taking a medium course, pruning systematically and with judgment. We speak of training trees. I believe we should both cultivate and prune judiciously, and then our orchards will bear apples of good size and color. If orchards are to make themselves why should we have horticulture at all? I think it great foolishness to prune as another neighbor who prunes severely and gets a vigorous upright growth, plenty of water sprouts and little fruit.

Mr. Burrows—I have known an orchard bearing twelve or fifteen years without pruning in that time, and it produces good fruit. Not a branch was cut except broken ones. There is no harm in taking a limb off out toward the end away from the body of the tree; that is not pruning; it is cutting back. You don't want your trees so high you can run a mowing machine under the branches. In gathering we could use a platform wagon, putting the apples directly into the barrels.

Mr. Holman—In a few years he would not even need the barrels. It is better to have a certain amount of wood if it is in the right place. Trees left to themselves will not grow the wood all in the right place. I have thought the cutting off of a broken limb back to the crotch was pruning. We have to train in the nursery for the orchard and in the orchard for fruit. I know not how to train a tree without using the knife.

Mr. Goodman—I would like to ask Mr. Bryant to tell us of Mr. Wier's twenty-five years non-pruning.

Mr. Bryant—I don't know much about it, but there are some of us who would not care to take Mr. Wier for a pattern in all horticultural affairs. I do not believe in much pruning, and many farmers have no idea of what they wish to make it in the end. If we begin the young tree right and follow it up we never need severe pruning. Many will take an old tree and cut off large limbs, and that, I think, is a serious injury in time.

Mr. Brown—I would prune by rubbing off the buds just as they start. I can do this on 800 young Ben Davis trees in half a day.

Mr. Erans—I think there are extremes both ways. I would not

know how to grow a tree without once in a while taking off a little limb. I have neglected trees till it was almost impossible to get them into good shape without pruning to kill. It is very necessary for a man who starts an orchard to know his varieties, when, where and how to prune.

NOTES ON SOME INJURIOUS FUNGI.

BY B. T. GALLOWAY, COLUMBIA, MO.

Doubtless every horticulturist has had some experience with the minute plants known as fungi, and we dare say few have so fortunate as not to have been troubled, at some period of their existence, with one or more of the many species of rust, or mildew, that cause such a vast amount of damage to cultivated plants.

We say all cultivated plants, because nearly every species of flowering plant is subject to the attacks of one or more of these parasites. Fungi, however, are not dependent solely upon the living plants for their existence, but many species flourish upon dead and decaying vegetation, and some species attack the members of the animal kingdom, often causing fatal diseases. The plants known as fungi are destitute of chlorophyl, or green coloring-matter, consequently they are unable to elaborate food from the soil and air.

As stated above, some species obtain nourishment from dead and decaying vegetation: these are known as *saprophytes*. A good example of the above group is the mould that occurs upon bread.

Those that obtain their nourishment from living organisms are called *parasites*. The rusts, mildews, etc., belong to this group. We have, then, the plants known as fungi divided into two groups, namely: First, *saprophytes*; and, second, *parasites*. As the members of the latter group are the most interesting to you as horticulturists, our remarks will be confined principally to them. The vegetative portion (the body of the fungus) of the plants usually consist of long, slender threads.

called mycelia. The mycelia of many species is internal; with others it is superficial, or on the exterior of the host or supporting plant.

The reproductive bodies are usually the most prominent part of many species of fungi, as they are usually colored and form the redish-brown powder which causes the host plant to present the rusty appearance. The reproductive bodies are commonly called spores, but as there are several stages of some species (especially the rusts) the reproductive bodies of each stage are known under different names, which prevents confusion.

Thus, there are usually three stages of many of the species belonging to the order *Uredine* (rusts, as they are commonly called). The first stage is known as the *Acidium* stage. This stage occurs early in spring, and the reproductive bodies are known as *acidiospores*. The second stage occurs in mid-summer and is known as the *Uredo* stage, and the reproductive bodies of this stage are called *uredospores*. The third and last stage occurs late in September or October, lives through the winter, germinates the following spring, and gives rise to the first or *acidium* stage. The spores of the last stage are known as the *teliospores*, which are usually dark colored and from one to many celled.

Most of the mildews produce two or three kinds of spores, and their growth is quite as remarkable as the growth of the various species of rust.

The facts given above will enable you to understand how difficult it is to trace the life history of these parasites, especially as the objects studied are so small that a microscope is necessary to study them. But, despite the many difficulties, progress is slowly being made. A century ago the total number of described species did not exceed 600, and more than half of these were included under the old genus *Agaricus*, or toadstools. Little or nothing had been done with the more minute species, such as the rusts, mildews, etc. But microscopes were not in use in those days, and without the aid of microscopes little progress could be made.

Since microscopes have come into more general use, many new species have been described. A few years ago the total number of described species did not exceed 600; the number now has increased to many thousands, and new species are constantly being discovered and classified.

Prof. Burrell, in a bulletin issued by the Illinois State Laboratory of Natural History, describes about 300 species belonging to the order *Uredine* (Rusts), that were collected within the borders of Illinois. A knowledge of the life history of these parasites is of the utmost import-

ance, as it will enable us to attack them at their weakest point. This is also true of insects, and we regret that Missouri provides no means for the systematic study of both.

We will not enter upon a minute description of any of the various species mentioned further on, but will merely give you a few hasty notes, which may be of some value to you. We are now experimenting with several injurious fungi, and hope to give the result of our labors at the next winter meeting. In testing the effect of different applications upon the germination of spores, we find that applications that will destroy the spores of one species will actually stimulate the growth of another.

Below is a list of some of the most destructive species:

Fusicladium dentriticum. The apple peel fungus. This is the disease that causes the scab on apples and pears, it also attacks peaches. The disease appears here in Missouri about the first week in June. Cold, wet weather seemingly stimulates the growth of the fungus. During hot weather the brown spores fall away but the brown scar remains, and as soon as cool weather comes new spores appear at the borders of the old scabs. The following apples are subject to the disease: Early Harvest, Twenty Ounce, Willow Twig, R. I. Greening, Spitzenberg, Grimes Golden, Rambo. Those exempt are the Russetts, Winesap, Artrachan, Yellow Bellflower, Ben Davis, Huntsman, Missouri Pippin, Smith's Cider, etc.

The following fungicides have been used with success: 1st Kerosene emulsion as recommended by Prof. Riley for the destruction of insects, made as follows:

Kerosene.....	2 gallons.
Common Soap.....	$\frac{1}{2}$ pound.
Water.....	1 gallon.

Heat the solution of soap and add it boiling hot to the kerosene. Churn the mixture by means of a force pump for five or ten minutes. The emulsion if perfect forms a cream which thickens on cooling, and should adhere without oiliness to the surface of glass. Dilute before using, one part of the emulsion, with nine parts of cold water. The above formula gives three gallons of emulsion, and makes when diluted, thirty gallons of wash. Apply with syringe or force pump.

2d—Hyposulphite of soda	1 pound.
Water.....	10 gallons.
Apply same as above :	
3d—Sulphur.....	1 pound.
Water.....	20 gallons.

Constant stirring is necessary to keep the sulphur suspended, apply with syringe or force pump. Lime water sprayed on the foliage has proved beneficial.

Podospheara kungei is the name of a fungus that frequently attacks the leaves of apples and plums in the nursery causing the leaves to curl and eventually fall from the tree. The fungus appears in August and belongs to the group of fungi known as mildews. The plant body or mycelium is superficial, consequently can easily be destroyed by an application of sulphur as recommended for the scab.

Puccinia pruni spinosae. Plum leaf rust. We found this fungus very abundant last year on the leaves of young plum trees. This rust belongs to the same genus as the one that occurs on wheat, oats, etc. We have not heard of any great damage caused by this fungus ; but it may prove troublesome in the future. The spores are dark brown and occur in small tufts on the under side of the leaf. Appears in September.

Oecomma nitens. Blackberry rust. This fungus is familiar to all. The disease usually appears in this section about the middle of May or first of June. The same fungus causes the rust on raspberries. As yet no remedy has been discovered ; the disease occurs under all conditions of soil, temperature and moisture, and usually destroys the host plant. Applications of lime, dust, ashes etc., produce no effect and time expended in applying the same is wasted.

About the only preventives are :

1. Destroy all plants as soon as attacked.
2. Plant varieties that are known to be free from rust. Kittatinny is the only variety with us that is showing rust. Early Harvest, Western Triumph, Snyder and Taylors Prolific are free from it.

Ramularia tulasnei. Strawberry white rust. Doubtless every one has noticed the white spots encircled by a redish-brown band, that occurs on the leaves of the cultivated strawberry. The spots are caused by the fungus above mentioned ; it is not a true rust however, but belongs to another group of fungi. The spores are usually borne on the

under side of the leaf in the centre of the white spots. They are cylindrical and supported on stalks about twice the length of the spore. This disease is increasing all over the country and is now recognized as one of the worst pests of the strawberry. Lime dusted on the leaves is one of the best known remedies. It should be applied every two or three weeks, beginning in April, and continue until the fruit sets. The disease rarely attacks healthy plants: keep plants in a healthy condition by good cultivation, and by giving them a sufficient quantity of plant food, and you will experience little trouble with the fungus.

DISEASES OF THE GRAPE.

Many of you are doubtless aware that two kinds of mildew occur on the foliage of the grape; both species of which were fully described at the last winter meeting. The first.

Peronospora viticola (American grape mildew) joins certain definite spots on the under side of the leaf. In the centre of the spots may be seen little mealy tufts; these are the reproductive bodies, the plant body or mycelium is internal.

The second. *Uncinula spiralis* (European mildew) occurs on the upper surface of the leaf, and the plant body is superficial. This fungus causes no great amount of damage in this county; it is the first mentioned species (*Peronospora*) that is the most destructive.

Sulphur and copperas have been used with success, but the following mixtures is highly recommended by M. A. Millardet of Bordeaux, France. We would advise you to try the remedies and report at the next winter meeting. The following is Millardet formula:

In twenty-six and one-half gallons of water desolve seventeen and one-half pounds sulphate of copper, also make with eight gallons of water and thirty-three pounds of lime a thick lime milk, and mix with the solution of sulphate of copper. It will form a bluish paste. Some of this is poured into a bucket (thoroughly stirring it) and is applied to the leaves with a broom or brush taking care not to touch the grapes.

Another remedy is simply a lime wash made as follows; Lime, five and one-half pounds; water, twenty-six and one-half gallons. Sprinkle the foliage with the wash every two or three weeks, beginning in May. A single application of the first mixture made about the time the *Peronospora* appears (1st of July) is sufficient.

Hoping the suggestions offered will be of some value to you, I remain,

Respectfully,

COLUMBIA, Mo.

B.T. GALLOWAY.

REPORT BY M. G. KERN OF ST. LOUIS, JUNE 7, 1886.

J. C. Erans, Esq., President Missouri State Horticulture Society :

DEAR SIR—It affords me great pleasure to lay before the members of the Horticultural Society the plan of Warrensburg Normal School grounds, which I have finished hurriedly in time for the meeting at Louisiana.

I am happy to see the time arrived when the leaders in the horticultural industries of the State take a lively interest in the ornamental mission of trees, shrubs and flowers, and when the efforts of this society will energetically be directed towards the decoration and improvement of the grounds of the leading educational institution of the State. This is a timely and noble work, of the results of which the society may justly feel proud before many years have passed by. A knowledge of our most valuable timber trees and of the most desirable material for the ornamentation of grounds is indispensably necessary before we can expect that the best kinds will be generally planted.

Our nursery men know full well how difficult it is to sell and to introduce a variety, however valuable it may be, if unknown to the public, they know likewise that the comparative smallness of the trade in ornamental stock is in a great measure directly due to the lack of acquaintance with the most desirable kinds. How important is it therefore that this species of horticultural knowledge, (or as some wish in called—science,) should be most liberally promoted by this society, and what more practical mode of dissemination can be selected than your progressive project to introduce the best collection of shrubbery into the school grounds of the land, by which the youth will be brought in daily contact with the most beautiful trees and shrubs, and with an artistic or tasteful system of grouping and planting of this material.

One popular delusion entertained by many well meaning people must, however, first be exposed and abolished if in any way possible. This is the custom or rather the rage of filling up a place, private or public, with a mass of the commonest trees and bushes, and rejoicing in their rampant growth. After a few years, such places present that stereotyped look of confusion and excess of shade, but the idea of cutting fifty or seventy-five per cent. of the useless brush wood out is scorned by most people, and this ends the possibility of sensible improvement for many years in many cases.

The plan herewith presented is designed with a view to the greatest simplicity of arrangement. It contemplates the removal of some

of the shrubbery in front of the building, and the planting of distinct, sharply defined groups and masses of trees, which should be set out under a system of classification by families as far as practical. The lawns or open spaces between the groups should never be permitted to be dotted over with bushes or trees of any kind, but should be kept open for lawn ramble and play ground. This much of improvement is within the reach of any of our educational institutions, and if done by them the grounds will develop in the course of time into sylvan features of great beauty, from which both the young and the old can learn many lessons of arboriculture and correct judgment in matters of decoration of grounds.

The walks and grading and smoothening of the ground form the mechanical part of the improvement, which owing to the expenses involved, depends much on controuling circumstances, and may take years of gradual labor before it can be completed without a special fund granted to it. This portion of the plan is only the finishing touch, but not the reality of truly progressive improvement. Let those features of the work costing least, and requiring years for their development, be thought of first, and let the incidental walks be made when the necessary funds are at hand.

Regretting my inability to be present at your meeting, I am,

Very respectfully yours,

M. G. KERN.

The following was offered by Major Ragan :

Mr. President, I move the following resolution,

Resolved, That this society is in favor of ornamental improvement of the public school grounds of this State, having already begun the work by making an example in laying out and planting the grounds of the State Normal School at Warrensburg, under this societies direction, by a competent landscape gardener, and further,

Resolved, That at next Arbor day we make the effort to have the grounds either at Kirksville or Carthage improved in like manner, and,

Resolved, further. That the Agricultural Department at Washington City be petitioned to aid this society in the further improvement of our public school grounds.

Z. S. RAGAN.

RELATION OF EARTH WORMS TO HORTICULTURE.

BY PROF. SHIPPERD, OF SPRINGFIELD.

We are fast learning not to despise the least of the myriad forms of life that teems around us since science is constantly showing how some of the most lowly and apparently noxious animals or plants are of the utmost value to man.

The study of nature has revealed some wonderful correlations of growth. Haeckel, for instance, has shown that certain tribes of people in the Pacific islands are dependent for food, clothing and even life on so insignificant an insect as the body louse. This is the case as he states it: The bread-fruit tree is the source of their food, clothing and the material with which to construct their houses and boats. This tree would bear no fruit, and would eventually die, were it not for the insects that carry the pollen from one flower to another and thus secure the fertilization of the flower. Now these insects are destroyed by insectivorous birds, and the latter are, in turn, eaten by birds of prey. But the enemy of birds of prey is the body louse, and if these are abundant they destroy their host, so if there are many body lice, there are few birds of prey, and consequently the insectivorous birds are not destroyed. This leaves a multitudinous enemy for the insects, and with their destruction the trees fail of fertilization and the natives are subject to starvation for lack of food.

Although no such striking correlation is traced in the case of the earth worm, it is surprising how little we have known in regard to the real functions of so common an animal. It is to Charles Darwin's observations during the last years of his life that we owe the most of our present knowledge of how great results these humble creatures can accomplish. That we more readily understand how these results are brought about, it will be necessary to mention the chief anatomical characteristics of the earth worm.

The animal consists of an elongated tube made up of some two hundred rings or joints. The anterior, or head end, is larger and blunter than the more or less flattened posterior end, and about one-third the distance from the head end is a large swollen place called "the saddle." The outside skin glistens with a most beautiful irides-

cence in the sunshine, due to the breaking up of the rays of light by the numerous rings or constrictions. As the worm breathes by gill-like organs, its body must always be kept moist, so an immense amount of mucous or slime is secreted from its whole surface. Just underneath the second joint of the head a peculiar slit or opening marks the position of the mouth; this opens into an enlarged tube leading to the stomach, which tube, because of its occasional protrusion for the seizure of food, is called the proboscis. The stomach is a mere enlargement of the intestine, and together with the latter passes as a straight tube to the posterior end of the body. Just in front of the stomach are two large branched glands, which, from the fact that they secrete immense quantities of a solution of carbonate of lime, are called the calciferous glands. The function of this secretion is believed to be the neutralizing of acid food, as it is frequently thrown out to cover such food. It undoubtedly aids in the digestion of the food outside of the body, and is the only case, as far as known, of extra-stomachal digestion. By placing an earth worm on a plate and watching the peculiar wriggling motion, a row of minute spines may be noticed on either side of the body. These can be readily felt by drawing a worm through the fingers from head to tail. These bristles are worked by a complicated set of muscles which makes locomotion very rapid. Every schoolboy who has ever dug worms for bait will testify to the rapidity with which a worm can escape pursuit, and this is the way that it is done; Expanding the body posteriorly, the bristles are fastened, like so many little anchors, holding that end in the soil; by another set of muscles the anterior end is elongated to a certain distance, and there anchored by means of the bristles, when the rest of the body is drawn up to it, and the process repeated indefinitely. When the worm moves rapidly it may eat large quantities of soil, from which it assimilates whatever nourishing organic matter it may contain. This earth is frequently discharged at the surface of the ground in irregular, coiled dirt-castings, so commonly seen around small holes on our lawns and in the gardens; it is not uncommon to see as many as six or eight of these little mounds in the space of one square foot, from which we may infer something of the quantity of soil thus brought from below to the surface of the earth.

Von Hensen studied these little animals for several years, and to him, as well as to Darwin, are we greatly indebted for our present knowledge. He describes their habits in a most interesting manner, stating that it is mainly at night and during damp weather that they

come to the surface to eject their castings, and how they pull leaves, twigs, seeds and germinating plants into their holes; the leaves are usually rolled singly and drawn by their stems down into the holes, which extend almost vertically, frequently from three to six feet into the soil. These vegetable substances are left several inches below the surface, and when partially softened by decay, are eaten, forming, with the organic matter of the earth, the main food supply of the worm.

That earth worms play an important part in the economy of nature is evident from the fact that they bring from underneath the ground to the surface large quantities of earth in the shape of castings. These casting are enriched by mixture with the intestinal and urinary secretions of the worm, so that frequently sandy, poor soil, by this process, is converted into a rich humus. Darwin has, by a long-continued series of experiments in various parts of England, calculated that on each acre of ground more than two tons of dry earth annually passes through the bodies of these worms and is brought to the surface, so that the whole superficial bed of vegetable mould passes through their bodies in the course of a very few years.

The original surface of the earth was, in most places, solid rock, and the present superficial layer of soil, varying in thickness from a few inches to a hundred feet or more, has been formed by such agents as the chemical and physical action of the atmosphere, water, acids, frost, ice, wind, etc., while, in addition to these, the earthworm has played a most important part, not only in enriching the soil, but in helping to make it. Wind and rain tend to remove the surface soil from high places and carry it to the the valleys below, so that there is a constant tendency to lowering the country in height, and to a spreading out in area near the sea shore. It is a fact, however, that in hardly any places do we find the rocks entirely denuded of their soil; consequently, there must be some counteracting agency at work to assist in making, from the underlying rock, new soil to replace that washed away by surface drainage. It is here that the service of the earthworm is most marked; their burrows, which are so numerous, provide an easy means of access to the rocks for the atmospheric gases and organic acids which are the chief causes of their disintegration. Mr. Julien states that there are probably a dozen or more organic acids that are produced by the decay of vegetable matter. Part of the intestinal juices of the earthworm are acid, and it is probable, Darwin says, that they are the same as those produced by the decay of organic matter. These acids, and the acid salts produced by their combination with some of the alkaline errths, act strongly in dissolving such common rocks as limestone and

the oxides of iron; some of them, Thenard found, will dissolve colloid silica. The chemical solution of these soils is also aided largely, as Darwin has shown, by agitation; in this, the constant passing of the soil through the intestines of the worms is of great service, as it tends to constantly bring fresh surfaces of the materials of the earth into contact with the acids. The caving of the old worm-burrows, and the formation of new, also aids largely in the process of chemical action. The excess of leaves and buds which the worms drag deep into their burrows, will bring, by their decay, the humus acids nearer to the bed-rock, which is thus exposed to their action. It is evident, from the amount of sand and other coarse materials found in the gizzards of these worms (and Darwin has also proved that this coarse material is dissolved by the chemical process of digestion), that the coarser substances are pulverized, enriched and converted into a fine soil by this trituration.

We might speak, also, of the agency of worms in smoothing off and leveling rough fields and lawns. The writer has noticed, on his own lawn, that the rough places left by the foot of a stray horse or cow are very quickly obliterated. Rough ploughed fields, in a few years, if left alone, soon become tolerably smooth pasture land. The immense amount of worm castings is carried, either by wind or rain, and deposited in the depressions, thus rendering the surface comparatively smooth in a relatively short time. Worms also prepare the soil for the gardener, rendering it friable and soft, thus aiding the growth of fibrous-rooted plants more than the efforts of the most skillful cultivator. The worm-burrows must also aid largely in facilitating the progress of the larger roots in the soil, and, by bringing decaying leaves and organic matter in direct contact with these roots, assist greatly in the nourishment of the plant.

In closing this brief and, necessarily, imperfect sketch of a humble worker, we may say that few animals have borne so important a part in preparing the earth for the use of man as that which has, heretofore, always been called by us the insignificant earth worm.

Mr. George Husman was called upon to give a few thoughts upon the grape.

Mr. Husman—I don't know that I could give you any advice or information on the subject. I could tell you how we grow vines in California, or how I used to grow them here. I have become rusty in five years absence, and by growing and pruning different varieties, and in different ways altogether there from those here.

Mr. Speer—Grapes are not grown in Bates county to any great extent, but the vines seem to be in very fine condition; no rot and no insects up to this time. The Concord is grown generally, but some of the new varieties, as Moore's Early, Goethe and Worden are doing well.

Mr. Husman—The grape mildew we have here is very different from the mildew we have in California. *Peronospora* is the one that is best counteracted by the copperas and lime solution. It was my privilege to attend the National Grape Growers' Convention, and I will make a short report of what we did then. I have been highly gratified by the advance made as shown by calling such a convention. About seventy-five became members, and a uniform spirit of enthusiasm prevailed. Commissioner Colman took strong grounds and recognized the industry as a national one. He hoped to see the day when we would have a bureau of viticulture in connection with the Department of Agriculture.

We had two very pleasant reunions, for which upward of 5,000 invitations were sent out. One evening we used eastern wines, the second evening California wines. And among the 5,000 people there was not a case of drunkenness. I think this a very satisfactory demonstration of the fact that people could get together and enjoy wine without getting drunk.

BEST MEANS OF FIGHTING THE CODLING MOTH.

DISCUSSION.

Mr. Goodman—It is easier to fight the codling moth than the gouger. We can use the paris green mixture for the former with the force-pump. It has been tested in the East very extensively. They mix a pound of paris green in forty gallons of water, continually stirring; put the barrel in a wagon, drive through the orchard and spray it onto the trees soon after the bloom drops. Three times is as often as is necessary to make perfect apples. If any one has tried any experiments in destroying the codling moth, let us hear from him.

Mr. Stewart—Tell us something about the gouger.

Mr. Goodman—It is very much like the curculio, but bores a round hole, and goes through its transformations in the apple instead of the plum. The little hard knots you find in the apple are made by the gonger. It is much harder to fight than the codling moth.

Mr. Husman—We hang up vessels of sweetened water and build bonfires in the orchard at night, and one of the most effective ways is to keep hogs running in the orchard. I have had them in my orchard and we have not had nearly as many codling moth as before.

Mr. Patterson—I have looked in the apples found on the ground, but have never found a worm in one of them, and hence, I believe the hogs would do no good. We get many with paper bands.

REPORTS OF SPECIAL COMMITTEES.

Your Committee on Fruits and Flowers make the following awards:

Best box Cherries, J. C. Evans	\$1 00
Best box Red Currants, J. B. Durand.....	1 00
Best box White Currants, J. C. Evans.....	1 00
Best box Raspberries, L. A. Goodman.....	1 00
Best box Cumberland, J. C. Evans.....	1 00
Best box Crescent, W. G. Tinsley	1 00
Best box Joe Burrows, R. McD. Smith.....	1 00
Best box Bubachs No. 5, A. Bryant.....	1 00
Best box Wilson, L. A. Goodman.....	1 00
Best basket Flowers, H. Nielson.....	2 00
Best design Flowers, R. S. Brown ...	2 00
Best wreath Flowers, P. Ducret.....	2 00
Best hand Bouquet, L. A. Goodman.....	2 00
Best table Bouquet, P. Ducret.....	2 00
Best vase Bouquet, L. A. Goodman.....	2 00
Extra, Mrs. W. E. Jackson.....	2 00
	<hr/>
	\$23 00

Your committee find on the tables seventy-nine plates apples, representing almost that number of varieties, in a fine state of preservation, some one, and others, we are told, are two years old. This, to your committee, is matter of wonder and pleasure, and evinces the very fine success our secretary has attained in his efforts at preserving these fruits on experiment with cold storage.

Your committee might report comparison of varieties, but pass to mention one plate Jonathan, sent in from Oregon, Mo., kept in an ordinary cellar. It is very fine, and remarkably sound for an apple of its season.

We also find plates of Lawver and Janet, kept in ordinary cellar in Montgomery county, grown and presented here by Mr. Lionberger, chairman of this committee, who declines to say anything of his own products, but the other two on the committee are pleased to say that these specimens are fine and well preserved in soundness, color and weight.

All of which is respectfully submitted.

F. LIONBERGER,
WM. KAUFMAN,
D. S. HOLMAN.

REPORT OF COMMITTEE ON FINAL RESOLUTIONS.

1st. *Resolved*, That the thanks of this society are due and hereby tendered to the following railroad companies for reduced rates and other courtesies granted the members and friends of the society in their attendance at the third semi-annual meeting at Louisiana, June 8 and 9, 1886, namely:

The Wabash, St. Louis & Pacific; the Hannibal & St. Joseph; the Kansas City, St. Joseph & Council Bluff; the Chicago & Alton; the St. Louis, Keokuk & Northwestern; the Chicago, Burlington & Kansas City; the Missouri Pacific system; the St. Louis & San Francisco; the Kansas City, Fort Scott & Gulf and the Chicago, Rock Island & Pacific.

2d. *Resolved*, that we sincerely thank the Cumberland Presbyterian church for the use of this comfortable, elegant and commodious house for our meetings.

3d. *Resolved*, that the thanks of this society are due Mr. Hans Neilson, St. Joseph; Mr. R. S. Brown, Kansas City, and Mrs. W. E. Jackson, Louisiana, for their contributions of exquisite flowers that make up this floral display.

4th. *Resolved*, that the thanks of this society are due to Messrs. Stark Brothers and Capt. W. W. Anderson for their great and valuable services in their care and entertainment of the members and friends of the society on this occasion.

5th. *Resolved*, that the thanks of this society are due to the Hon. Mayor and City Council for their kind invitation to visit the city at their expense, and to the citizens who have hospitably opened their homes for the entertainment of the members of the society.

6th. *Resolved*, that the thanks of this society are due the press of the State for printing the reports of the transactions of this meeting.

7th. *Resolved*, that this meeting will result in much advancement in the cause of horticulture, and that it has been very enjoyable to all present.

L. L. SEILER,
J. B. DURAND,
S. M. BAYLES.

Adjourned to 8 P. M.

WEDNESDAY, 8 P. M.

Meeting called to order and a song was given by the choir, after which Rev. Pearson offered prayer. Another song was given. Then an essay was read by Maj. Ragan.

ORNAMENTAL.

BY Z. S. RAGAN, OF INDEPENDENCE.

It has been said that horticulture is the flower of agriculture, and it may be further claimed that the ornamental is aesthetic in horticulture, and that it is not confined to any station in refined civilized society. From the poor to the wealthy, from the humble cottage to the palatial mansion.

Adornments to make home attractive and to render home what the poet has claimed "Home, sweet home," should engage the study of all good citizens. The limited dooryard of the humble cottage (not unfrequently one of the first improvements of the young wife) is to plant some shrubs and flowers as best she can, and how often doomed to disappointment from a want of appreciation on account (shall I say,) of her better half suffering the horse or calves to brouse their tender buds, or the rooter invert them by turning the wrong end to sun and view. If we may be allowed the digression, to treat of match-making, would advise the girls to shun the men who have no taste for horticulture. The limited dooryard of the humble new beginner may have some beds of Pansies, Wild Columbine, Blue Flags, Red Lilly, Ladyslipper, Azalia and Mayflower, all native and hardy. To which may be added Verbenas, Yucca, Honeysuckles, Snowball, Syringa, Lilac, etc. Also Trumpet Vine, Virginia Creeper, Wisteria or Virginia Silk Vine trained over or about the cottage as evidence of the best and noblest efforts of the inmates to do what they can to beautify their home and country. To treat of the other extreme, numerous and tasty suburban and country residences through the length and breadth our country might be introduced as models of highest praise.

Mr. Downing has given some fine illustrations in his work on Landscape Gardening, and Henry Winthrop Sargent in his revision of that work adds: "It must be conceded by observing and discriminating persons that the style of our country places is still vastly inferior to the marked improvements in rural architecture."

Persons do not think of building their own houses but employ skillful artists, yet leave the laying out of the lawn and surroundings to chance without giving thought or study, or calling to their aid a

practical and professional Landscape gardener, whose knowledge will enable him to have the lawn and landscape to harmonize and correspond with the modern taste in architecture.

We have given an example of the humble cottager, and will now bring to your notice of a living example of the other extreme. In so doing, will have to go no further than our neighbor, H. M. Vaile, Esq., in the suburbs of Independence, who has devoted much study and attention to the ornamentation of the surroundings about his fifty thousand dollar mansion. He has an extensive lawn geometrically and artistically laid out and arranged displaying a wonderful degree of skill and taste. His tender plants and flowers are renewed every spring from his conservatory or greenhouse. His front lawn last year contained eighty thousand flowering and foliage plants, which are kept up and so arranged mid walks and drives and clumps so as to constitute in all one grand and gorgeous boquet, as viewed from the steps of the house. Yet this lawn does not constitute the full extent of the picture of this suburban. To give some faint idea of a more extended view of these premises by casting an eye to the south, beyond the lawn may be seen rustic works, and further in the distance clumps of ornamental trees and family orchard. To the rear tenantry and winery, waterworks, conservatory, stabling and park containing wild animals. To the north, artificial lake, boathouses, etc. Bounding this may be seen barns and pastures on which range herds of thoroughbreds. Taken altogether, it embodies a landscape of rare beauty for a newly improved homestead. Whilst the two extremes mentioned may not be applicable to the great mass of our people, yet all intermediates should strive to beautify both home and country. If more of our capitalists would invest a portion of their surplus in rendering home attractive as well the ornamentation of our country instead of absorbing all in stocks and bonds or speculation, it would be a laudable example, beside a source of pleasure to know that they had done something to beautify their country.

In connection with this subject I will quote from the *Buffalo Express*, which says of suburban Boston: "Then the Boston host can take his guest such a drive from Cambridge through Watertown, Newtown proper, and all the other Newtons to Auburndale, as cannot be matched in the country; over twelve miles of roads smooth as a billiard table, shaded on either side by grand old trees, which stand like sentinels in front of an endless succession of the finest private estates in this country, and every one of them maintained in the highest degree of perfection. A stranger is at once impressed with the fact that these

are homes in the best sense of the word, and the people who inhabit them do not live in their trunks five months of the year, as do all good New Yorkers. Yet the route I have indicated is only one in all directions and equally charming. Each time I visit Boston and its suburbs I am more convinced than ever of the fact that at least its middle and higher classes get more enjoyment and comfort out of life than do people of corresponding classes of this city, and at an expenditure of one quarter of the money."

My own observation while visiting Boston and witnessing the suburbans alluded to by the writer will lead me to mention Boston Commons as a model sample of neatness and beauty rarely met with in the way of a park or pleasure resort, especially do we admire the many ancient and native shade trees. The people of Missouri may learn a lesson and seek desirable homesteads and public grounds adjacent to our rising cities ere it is too late to preserve and retain some of these noble specimens that have been growing for centuries.

In looking over the programme for this meeting I find that our secretary has assigned to me Landscape Gardening on Public Roads. It may be that he intended as well streets and public grounds, in the way of trees for shade and ornament. If so, while this is a very desirable improvement, but one that will be hard to reduce to landscape from the fact that our public roads are generally laid out on straight lines, without affording sufficient variation and variety to command the admiration of the aesthetic observer. Yet nature comes to our aid, and what may be seen from my window as I write may compare with thousands of other localities. By looking down and across the great Missouri river the valley is lovely, and as farms rise gradually on the other side amid promontories and clumps of timber and prairie alternating with cleared fields and these valleys with cities and thriving villages give to the landscape a very pleasing perspective.

Before streets and public grounds and roads can be brought to be ornamental, some legislation, either municipal or State, may be necessary to secure uniformity. And before any great reform in this way can be expected, the public must be educated through precept or example. Some cities and some State Horticultural Societies are agitating this question and furnish commendable examples.

There seems to be frequent inquiries as to the best kinds of trees to be used for streets and ornament. I have in former articles attempted to give a partial list, yet the subject is one that requires time and observation to test those that may succeed best in different localities I can only speak of those mainly that I have tested. For streets

and public highways native hardy kinds, and of thrifty growth, and not subject to split or break by storms are most desirable, such as Rock or Sugar Maple, Elm, Ash, Linden, Sycamore, Cottonwood, Chestnut, Hickory, Walnut and Oak. The nutbearing trees have long tap roots and do not succeed well unless they have been well root-pruned previous to being transplanted.

For lawns and ornamental grounds some of the foregoing deciduous trees may be used if desired, to which others may be added, such as Wier's cut-leaved Maple, Norway Maple, Cut-leaved Weeping Birch, Horse Chestnuts (in variety), Cut-leaved Alder, Purple-leaved Filbert, Everflowering Weeping Cherry, Judas Tree or Red Bud, Purple-leaved Beech, Aunuba-leaved Ash, Golden Barked Weeping Ash, Weeping Tooth-leaved Mountain Ash, Weeping European Linden, Red Fern-leaved Linden, Tea's Catalpa, Wahoo and Tulip tree or Poplar. Conifers, White Pine, Hemlock, Balsam Fir, Double Spruce, Arborvitæ, (all American). Norway Spruce, Austrian and Scotch Pine, Siberian Arborvitæ, Compacta and Savin, the two latter Dwarfs. To which might be added many others as well as a great many handsome hardy shrubs and flowers, which we fail to have room at this time to mention.

Z. S. RAGAN.

INDEPENDENCE, MO., June 7, 1886.

FARMERS WIVES AS FLORISTS.

BY MRS. MARIE RODEMYER OF CENTRALIA.

No one possesses the advantage of the farmer's wife in surrounding her home with beautiful and attractive floral decoration. The farmer's wife should be a florist, her ample grounds gives such fine advantage for the display of taste and ingenuity in floral arrangement. It requires something of the eye of an artist at first to form and arrange flower beds satisfactory. The love of floraculture can be cultivated

to a degree, and as the knowledge of its science is unfolded to us, it becomes a captivating pastime. The outlay, in time and money is trifling when brought in compare with our enjoyment from our beautiful surroundings, to say nothing of the ruddy health acquired by the outdoor exercise, which alone will treble any expense we may have incurred. To be successful in the arrangement and display, one must be able to harmonize in color and form, and to group flowers with due regard to taste. The knowledge of a florist is very essential, and can soon be learned by self-teaching and observation. First learn to select your stock suitable to your arrangements, next learn to cultivate.

The flower beds can be varied as to size and shape, crescent, oblong, square or round. The center of beds and background of borders should be filled with the taller variety of flowers, such as Cannas, Colens, Dahlias and Salvias, any such tall variety, of which there are hundreds to choose from. They should however be arranged with due regard as to their adaptibility of color and form. The edges filled with diversified dwarf variety and small trailing plants as Verbenas, Pansies, Lobelias and Moss. Limited space deter us pointing out the manifold ways by which these decoration may be varied.

Our aim is to induce our sister woman to take an interest with us. They will, I am sure, find the highest gratification in the realization of these artistic triumphs, which the blending of flowers and variegated foliage lends to enhance the beauty of our surroundings, and makes all creation seem set to a brighter and happier key.

There is no limit to the use of flowers both as a source of profit and pleasure, and more attention is now being given to this branch than formerly.

Here we have the soil and climate favorable to floraculture, and every lady can at least grow sufficient to adorn her own home, and while gratifying her own taste, she will have that which is pleasing to her friends as well. Florists all over our broad land are earning money rapidly and easily, then why should not women be florists? The healthfulness commends it, the remuneration quite as good if not better than many of the devices adopted to eke out a living. Let women be florists, thus blending profit with pleasure and making earth full of heaven.

A small greenhouse or conservatory costs but little in which to winter her greenhouse plants, and she can fill her home with summer while the chill winter blast is howling outside. We are glad to see old fogysm giving place to the esthetic taste of to-day. And it is possible to make the poorest habitation charming, by the judicious display of

plants and vines about the doors and windows. But flowers too, form an important part in decoration, when arranged with taste and skill they transform the humblest dwelling into a pleasing retreat where we can toil in forgetfulness of the jars and discord of every day life. Flowers have an irresistible way of robbing our labor of its dull monotony. Culture improves and art utilizes flowers. But art while utilitarian to a degree does not rob the floral gem, fresh gathered from God's garden, (earth,) of its beauty, rather it steps into nature's help and prolongs that triumph. Left to decay flowers soon becomes unsightly objects. The love of flowers grows with us, as we are initiated into the mystery of their culture and habits, in watching the germinating of plants from minute seeds, and the formation of tiny rootlets to little cuttings in sand.

Flowers, from time immemorial have been the theme of poets and philosophers, and bards of old, tuned their lyres to sing peons to their beauty and fragrance.

The ancients delighted to idolize and symbolize objects, they placed their God's and Goddesses in cups of flowers, and we may trace in our own sympathies toward certain plants, the lingering still of heathen mythology. We desire to see the tastes of all, and especially our young people elevated and refined, and this can best be done through the refining influence of a pleasant and tranquil home, which in my experience can always be found, where flowers grow.

EVERGREENS.

BY CHAS. PATTERSON, KIRKSVILLE.

Even in my boyhood days, when I sometimes had occasion to get enough of dark, dismal forests, I involuntarily regarded those upright, stately monarchs as a superior creation to other trees, both in appearance and usefulness. This veneration has naturally been increased by absence from their association, and a corresponding value placed on

the few specimens planted here and there for ornament and protection. Selecting groves for places of worship seems but obedience to a natural impulse, and I feel more like uncovering my head in the presence of a few venerable living towers, than the most immense piles of brick or rock. An attempt to set a money value on them, seems almost sacrilegious, and ten fold, or even hundred fold, return of actual cost would scarcely be any temptation to the most sordid for parting with a well grown specimen in a proper place.

Perhaps very few would state the case as strongly as this, but it is safe to say that still fewer, or none, would make any attempt to refute it in the presence of half a dozen ten or fifteen year old, thrifty, well placed specimens. Very few would directly add one hundred dollars to the price of the farm directly for each such specimen, but with other appurtenances somewhat in keeping, buyer and seller would unconsciously place it there none the less, and the mention of ten dollars would be considered ridiculous. Why is it, then, that we see so few of them on the average farms, so called homes, the memory of which children should cherish? I can only answer by echoing: Why?

It is true that they are somewhat harder to transplant than common deciduous trees, that if the sap is once stagnated they cannot be revived, necessitating more careful handling. But there is more or less risk with any kind of trees, and prodigious failures, especially in hands not trained or accustomed to the requirements. Besides these are nearly always planted in the hardest sod on the farm, where the soil is not near fitted to grow a hill of corn, and the surrounding grass absorbs all the moisture long before the garden or decently kept orchard would suffer. Digging up the soil some time beforehand, when in proper condition, a circle six to eight feet in diameter, and mulching, or better, hoeing afterwards, would entitle us to expect more uniform success. Watering may be helpful and necessary, but a thorough soaking, not sprinkling. I have have to-day gradually put two barrels of water on a cultivated birch moved last winter with a ball of ice. A nail keg, leaky bucket or salt barrel will allow the water to soak in without baking the soil.

As to varieties, we are much less liable to go astray than in planting apple trees. Quite a number are entirely free from any objections, which can hardly be said of any apple.

Scotch and White Pine are universal favorites, both for growing in the nursery and on the lawn, and the taste would be singularly fastidious or perverted that could dispense with either.

Austrian Pine is quite as desirable as a tree, but has the ugly habit of being partly brown preparatory to shedding its leaves just at time we deliver in the spring, which makes it liable to suspicion of a dying condition, and being so nearly like the Scotch, we can just as well dispense with it.

Red Pine (sometimes called Norway Pine) is the peer of all, with its long, persistent leaves, but unfortunately it is nearly always scarce and hard to grow. I have had but one opportunity in twelve or fifteen years to get a stock of them.

Norway Spruce is too well known to need more than mention. It seems to me, however to grow more straggling and bare branches in our soil than other places, which could probably be obviated by cutting back such branches, but it is very seldom attended to.

I am partial to the White Spruce for growing more compact and a rather nicer tree while young at least, but it may not live as long or retain its beauty as well as the Norway.

Balsam Fir is very satisfactory, both in the nursery and lawn while young. No tree can make a better show at delivery and for many years afterwards, but it does not grow as large or live as long as the pines, which may be in its favor in some cases.

American Arbor Vitæ is perhaps the easiest transplanted, on account of its numerous fibrous roots, and I know of no objection to it, unless the tendency to get brown in cold weather, like the Red Cedar, from which they quickly recover on approach of warm weather. Both can be clipped to any desired shape, and without clipping they soon get straggling and bare. I saw a hedge lately that seemed twenty-five feet high, and only five or six feet wide at the bottom, tapering to the top, which was a beauty and comfort to the place.

Hemlock seems to have been very sparingly planted everywhere, as I have seen very few old trees, but I know of no good reason for avoiding them, especially in collections of any extent.

Larch, though shedding its leaves in fall, is resinous and cone-bearing. Out of quite a number planted in my knowledge I know of but one good specimen, which is not sufficient to recommend it here. Besides, it starts to grow with gooseberries, and it is impracticable for me to get it to customers in time in the spring.

Junipers are nicer than any pictures, when we succeed in growing them to any size and age, but this is so very precarious and uncommon that I think we can serve the general interest best, by wholly discarding them, especially as we have a number of dwarf trees to take their places.

Pyramidal, Compacta, Siberian and Tom Thumb, and presumably all the dwarf varieties of American Arbor Vita, are perfectly hardy and satisfactory as far as I have observed. But when it comes to any of the Oriental or Chinese varieties, it is equally safe to exclude them from our localities.

By way of experimenting, I have the Ponderosa Pine, which seemed last year to be winter hurt, but Mr. Douglas tells me it is subject to a fungus, on account of which he has abandoned it. The Dwarf Pine (Mayho) shows some very nice specimens, low, wide and compact, but quite variable from seed. But it shows some brown like the Austrian, or perhaps like the Ponderosa, which induces some misgivings for the present. The Douglas Spruce and Blue Spruce (Menzesii) both looked badly damaged this spring, but are coming out fairly well. It is possible that young, small plants might be so affected, and withstand our rigorous winters when older, but hardly likely, and Mr. Douglas claims that only seed from Colorado will make hardy trees. This would seem a point of valuable indication to those in search of other iron-clads.

CHAS. PATTERSON.

OUR HOMES.

BY MRS. REV. E. D. PEARSON, LOUISIANA.

There are themes so great, that arising before us in their magnitude they almost appall us with their grandeur, and we are dumb with wonder. There are subjects so woven and interwoven with the best interests of society that they never grow old, but call upon us yesterday, to-day and to-morrow for a careful hearing. There are chords in the human heart that beat and vibrate, as if set to sweet music when a theme so dear to every heart as *home* is mentioned—when the best interest of our fellow-man are brought to view, and we are made to feel and know that *we* can benefit, that *we* can give pleasure where no sweet pleasures grow, or that we can bring order out of confusion and cause the wilderness to blossom as the rose, in short; that we can and

be our brothers keeper. When darkness reigned upon the earth, and Chaos marked this world as his—from the Eternal came the word: “Let there be light and there was light.” the waters rolled and surged in their places and land, in time, dry land appeared and old earth had her place among the whirling worlds. God looking from on high, upon his work saw that it was good and very good. Then the chorus of heaven was awakened—the morning stars sang together and the sons of God, shouted for joy. We learn that in the fairest portion of that young earth, God planted a garden and out of the ground he made to grow “every tree that is pleasant to the sight and good for food.” The rivers went out of Eden to water this garden—the dews of heaven came down upon it, and the mists from the earth watered the whole face of the ground. And the Lord made man and put him in the garden to dress and keep it, giving him dominion over the combined kingdoms of the animal and vegetables. By and by, the work became too great for Adam. He needed help, and pined by the way, and Our Father in Heaven, seeing his need, came with his last best gift—the beautiful Eve, to help him in his grand work. Thus was formed the first great horticultural society, founded and brought into existence by He who hung our world upon nothing and created man from the dust of the earth, breathing with his nostrils the breath of life—a high born lineage running down to us through revolving years. I need not tell you the sad old story of the serpent’s entry into that garden, for we learn he was the most subtle of all the beasts of the field, tempting our great fore-parents to sin and caused the breaking up of that, our first great ancestral home. This story is too old to repeat, its effects too near to our view, for we all know that death is abroad in the land, and that the thorn, the thistle and briar do grow, and that the bug, the locust and caterpillar infest our orchards and fruits and the truth of the mandate, “by the sweat of thy face thou shalt eat bread all thy days,” is bourne to us on every breeze.

But man is now striving to redeem the lost cause and to restore the world to its pristine state. The nearest approach to that state before the fall is the well organized and thoughtfully conducted home. Homes such as we have in the United States of America—homes such as we have on our broad prairies where golden grain and waving corn give out their influence and go to swell the marts of the world: homes nestled in the hills where vines and fruits and flowers do or should greet us on every side; homes where the proud feeling of possession, by right of ownership, come to make it doubly sure. But the mandate

bath gone forth, "by the sweat of thy brow thou shalt eat bread all thy days." Trees beautiful to see and good for food do not spring up with mushroom growth, but require nights of nursing and days of watching. Thoughtful minds and cunning fingers, and all honor to those that have tried, and are now trying the most perfect methods of tilling the earth so as to produce the best results in combining the beautiful, the useful and good. Historians tell us that horticulture as gardening has been pursued from the earliest times of civilization or national refinement. The sacred historian tells us of the grapes of Eschal, the pomegranate and fruits of the field. Of the tall cedars of Lebanon of which Solomon, the wisest of the wise, built his house on the mountain side for his Egyptian bride, of his gardens, watered from the eternal springs. In his immortal song he sings his praises of the Rose of Sharon and the lily of the valley. According to Pliny the Romans had small gardens filled with roses, violets and other sweet scented flowers, but the thoughtful and cultured Greek brought the art to a higher state of cultivation, and to them we owe the origin of some of our choice plants. We have all read of the beautiful temple of Daphne, which, by their cunning and expert hand, combined with Roman money, was almost too beautiful for earth, and leaves Old Antioch one of the immortal things of the past. And even where the Arab stretched his tents the proud old shiek had his orchard of palms, dividing his time and thoughts with his beautiful Arab steed. But in those old days of war and rumors of war there was not time for the art to reach perfection, for we learn the science declined with the fall of Rome and was trodden under foot by the roving Goth and vandal, and was not revived until long after, under the monastic rule. Charlemagne established gardens and by royal edict directed the plants to be grown. The lords and nobles had gardens of their own, and England, in an early eay, had pleasure gardens, with fountains and walks, hedged in around and about, but it was not until about 1717 that conservatories were constructed. From that time on to the present horticulture has become an art and persons have been trained for the work.

It is only within the last forty or fifty years that it has made much progress here in the United States, but truly we can say it has gone forward with a bound in the last few years. The impetus given to it by the great horticultural and agricultural societies of the nation and of the states in convention, where thought meets thought, method compared with method. Truly in multitude of counsel there is good as well as safety. With helps that are now at hand and can be procured, almost every one can beautify and furnish themselves with trees that

are beautiful to see and good for food. Why, I can remember but a few years ago my father had a little nursery for his own use and his neighbors good, and he had to spend hours showing and telling others how to plant, to prune and gather, and with to-morrow the same old story had to be repeated. Now we have this literature of the very best at our command. Men of thought and culture are giving us the benefit of their labors. In our own state an able paper, *The Rural World*, is laboring successfully, and if you are not benefited the fault lieth at your own door. The enquiry arises why may not our state exceed what others yet have done; and become the garden spot of the universe and our homes the model homes of the world? Our nurseries are at our doors. In every part of our state they are rearing themselves in our midst and extending helping hands. But two miles west of our city stands, and I beg pardon for individualizing, the Stark Nurseries, the pride of the county, from which we can get every tree that is good for food and fair to see. Beginning in the year 35 and descending from father to son and son's son in these long years they have been gathering strength, and force, and utility until now they stand in their manhood wrapped in the glory of success, a thing of beauty and a joy forever. There grows the tree that is fair to see and good to eat. The roses red and berries bright. The grapes outrivaling the far-famed eschol bunch. There grows the apple, the peach, the pear, the plum. From this garden spot, and others like unto it, we can beautify our home, raise the health-giving fruits, and cause them to blossom and bloom. We can collect around them all that is attractive, and make for our children the fairest picture that was ever drawn by artist's hand. Mrs. Hemans, with her loving pen, has paid a lasting tribute to the homes of England—the royal homes, the palatial homes, the cottage homes, and even the cot upon the heath. Sir Walter Scott, with a pen of fire, has painted the border chieftain's home—the castled wall, the donjon tower, the mailed warrior, the bugle's hurried call to arms. Burns, the plow boy poet, in his love lays has shown as much of Scotland's home life; and the sons of Ireland, in their songs, all the while tell us of home and the shamrock in Erin's green isle, and from over the seas we hear of Bingen, sweet Bingen on the Rhine, and of the Tiber—the Roman's god—the Nile, Egypt's acknowledged supporter. But home on the Danube, the classic Tiber, the swelling Nile, the renowned Thames is not what it is here on the banks of the Hudson, the Ohio, Mississippi and Missouri. There, the feudal system cramps, and binds, and crushes. Royalty holds the reins. Wandering tribes at times roam the country, spreading destruction. Even where the old

Salem's haughty fane reared high to heaven its thousand golden domes, the wandering Arab's tent flaps in the desert blast; where the hanging gardens of Babylon perfumed the air, the owlets hoot and vampires hover; and on the banks of the Nile, where the dark Egyptian queen held high carnival—where her gardens extended over the face of the waters—*they are not*, and the story is told.

But here, in our own land and country, there is none to molest or make us afraid. We are emphatically a nation of homes. From our altars arise the sweetest of incense: we eat from our vine and fig tree, and worship God according to the dictates of our own conscience—the old Hebrew's dream of heaven. From the cottage on our prairies to the palatial residences in our cities, comes the proud feeling of possession by the right of ownership—a protection in and of itself to the nation, for seldom do we see or hear of the owner of a home crying the red flag of confusion. Last summer, as I tarried for a while in a northern city, we accidentally heard a band of workmen clamoring among themselves for a strike. One, and only one, pleaded wife and children and home. "Boys, don't! I can't go with you; I won't go with you." They drifted from us in their slow work, the one still pleading for wife, children and home. Again I repeat, no call for the red flag here in this favored land. Uncle Sam is yet able to give us all a farm. Our acres are broad and productive, and here are homes for the millions. Not for the absentee, who holds by proxy; not for the foreigner, who accumulate our lands and send their minions here to do their bidding—to the attention of our legislators, in halls assembled, is now being called—but for the citizen, the law-abiding citizen, of these United States, where they can have planting and gathering, sowing and reaping, knowing that seed time and harvest shall never end. Establishing homes which will descend from sire to son, gathering as they go beauty, strength and power. And of woman in these homes, the half has not been told. With an eye for the beautiful, with a love for the pure and, with a pride for a husband's success and children's advancement; with a keen quick, discernment of what is for the best (with just one-half of a chance), home is made almost a paradise. I know, too often, she is the Hebrew of which a song is required, and of her bricks without straw, and that she has to battle valiantly against combined evils; but there is many a joy in the path of life, if we only stop to take it. In no place in this great work does she have so much freedom, and strength and power awarded her as in the homes of our states. Our husbands, and sons and neighbors are so gallant, so brave and loyal that they outvie the nations of the world in chivalry to woman,

and she, in her fair realm of home, prepares a place for them—a home in every sense of the word—where, after the day's battle is o'er, buying and selling has ceased, coming and going has ended, they may rest from their labors, and the pleasure of home come to their tired souls like the benediction that follows the evening prayer, and with that immortal son of song—that great reader of human heart—we say:

“ Home, home ; sweet, sweet home ;
 Be it ever so humble,
 There's no place like home.”

MRS. REV. E. D. PEARSON.

SOME OF MY EXPERIENCES IN THE NURSERY BUSINESS SINCE 1875 IN
 SEDALIA, MO.

Gentlemen of the Missouri Horticultural Society, at Louisiana, Mo:

There is perhaps no industry where honesty is as much neglected as in this, and certainly there is no industry where this evil practice is more injurious to the public welfare than here again. If it were not deplorable it would be ridiculous to see the many humbugs that are constantly practiced by tree dealers to beat the hard working farmer out of his money. I am not opposed to the honest tree peddler, employing some myself, but if you have to read letters and hear complaints, season after season, about the dishonest transactions perpetrated on the public by unscrupulous men you cannot but come to the conclusion that the distribution of the many thousands of such bills of trees amongst the tree planters is one of the great evils under which the American farmer is suffering.

A few of the many cases of frauds I know may be mentioned here.

“ There comes a tree agent in a fine carriage from Ohio to our farmer, sells him two dozen Russian apple trees, which are borer proof at fifty cents each (including the Salome; think a moment, he never had it to offer) that can be bought for twelve to fifteen cents retail; or he sells a Wisteria vine to Mrs. Williams at \$1, a plant unknown here he says, that I sell for twenty-five cents retail; or he sold a German

farmer 400 Nortons Virginia for \$50 that all proved to be Concords; or as a letter from Nebraska states to me, the agent sold the hardy Minnesota apples for fifty cents each and they proved to be seedlings; or like that agent that came to me this spring to buy "Queen of the Prairie Rose" for twenty-five cents, packed it in my presence to be expressed to Mr. ———, Moberly, Mo., and to a councilman in our city, to whom he had sold the rose for \$2.50, as a novelty; he lied, saying he had just received it from Quincy, Ill. I ask you, have not you all heard of such frauds?

This is the last bill I buy from a tree agent is the standard talk of our farmer, and it is certainly a puzzle to any logical thinking man to see that very same man buy another bill of trees from the next agent that makes his appearance.

If the profitable investment of money and labor constitutes the basis of prosperity in a nation, there is certainly an immense loss heaped upon this people by the unprincipled tree peddler. Or who will defend the planting of millions of worthless fruit trees that are annually sold in the United States, worthless because they do not suit the climate, soil nor demand.

But all this is discussed in our meetings and the best varieties of fruit trees as found by actual experience are promptly published, the answer will be, that the man that orders in his ignorance the worthless varieties is to blame for the loss he has to stand.

In the first place most of the farmers are, as a rule, ignorant in regard to these points, and to remove his calamity, of course, our Horticultural Societies are the very best institutions. With one fault, it seems to me, that is the knowledge and experience pointing out the best varieties of fruit trees for profit is not sufficiently made known.

A pamphlet specially prepared every fall alone for the fruit tree planter containing the seasons results and experience in this branch and nothing else, could be delivered for ten cents and would certainly be read, instructing and preparing the farmer, for the inevitable tree agent.

But instead of this true and practical guide, he receives his agricultural paper, containing all sorts of advice, some good and others worthless, advertisements and puffs and God knows how many catalogues, the result of their reading practically leads to confusion and contradictions in his judgment.

Better diffusion of practical knowledge is needed here to learn the best methods of planting and raising trees, to buy only the best known varieties and thus save money and labor.

As it is to-day, it is naturally easy to the sharp, shrewd tree agent to make a prey of the poor, hard toiler of the soil. But let one-half dozen years be passed with the pamphlets mentioned, distributed on every farm in the State and you will find your farmers 100 per cent. better advised what to select and from whom to buy when they make out their tree bill.

To say the tree agent is the pioneer of horticultural life in a new country may be all right, as he undoubtedly induces thousands of farmers to buy and plant trees, but if we look at the poor result these very farmers have with most all of their trees and the loss of money and labor that they have to suffer in unproductive investments, we should stop and think about substituting something better than the irresponsible tree agent of to-day to perform that good work of inducing the planting of trees. Can that not be regulated by legislation? Can the tree planter not be protected against frauds wherever they come from? For instance, a man buys to-day a lot of fruit trees, such as Salome, Yellow Transparent, or Marianna plum, and when in bearing he finds to have been cheated.

No tree agent should be permitted to sell trees except under the responsibility of a good Nursery firm and no bill of sale of trees should be binding to the farmer except such a firm pledges itself for the true name of the variety sold and delivered.

It is to a great extent the inadequate condition of our laws regarding the horticultural interests of nurserymen and tree planter that educates these criminals, that furnish a man a Concord vine for a Norton Virginia, or by a lot of unsalable varieties of trees of some overstocked, large nursery and label them according to their sales.

What could we (Husman & Co.) do against that tree agent, that in 1876 bought, after spring business, our unsold peach trees, and when he had paid for them, labeled them Amsden June that he had sold at \$1 each near Harrisonville, Mo.

Gentlemen of this society, this matter of strict honesty between the nurserymen and fruit tree planter is of the greatest importance to our horticulture, and you can perform a lasting good work to bring about a change to the better in this miserable practice of beating the tree planter as done now.

I say it again, to lessen the frauds the farmer, when making his bill of trees with the, unfortunately, indispensable tree agent, has to stand, but one way is practically successful in my experience, and that is

knowledge in the fruit tree business distributed in the ablest, simplest and least expensive manner.

Very respectfully

JUNE 7, 1886.

PHIL. PFEIFFER.

Mr. Geiger read an invitation from the Boonville Society asking the State Society to meet at that place.

Mr. Erans—I am thankful to the gentleman for the invitation, but we can accept but one at a time, and we have plenty of invitations, I believe it will take us a hundred years to catch up if we accept all the invitations.

Mr. Durkes offered the thanks of the society to the singers who had furnished such fine music.

Mr. Bryant invited the society to meet with the Illinois Society the first week in December.

Mr. President accepted the invitation and said he would be there if he could.

After a few final words of parting by the secretary, the society adjourned to meet at Lexington, December 7, 8, 9, 1886.

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29TH ANNUAL MEETING
OF THE
MISSOURI STATE HORTICULTURAL SOCIETY,
HELD AT LEXINGTON DEC. 7-9, 1886, AT TURNER HALL,

UPON INVITATION OF THE LAFAYETTE COUNTY HORTICULTURAL
SOCIETY.

Many of the members arrived on the morning trains, and soon Turner's Hall was a buisy place. As fine a collection of apples were shown as has ever been our lot to see together at this time of the year. Every one was buisy putting out their fruits and arranging the hall.

At four p. m. the president called the meeting to order and

Mr. Hall of Lexington extended a hearty welcome to the society, and spoke of the increased interest taken in horticulture in this part of the State. He said that the meeting of the State society at Lexington had had its influence on the people of the vicinity and that influence would continue to grow. What made the garden of Eden was Eve and horticulture. He hoped that the business of horticulture would soon become one of the most profitable and successful in the State. Through the efforts of such men as *Mr. Teubner* and *Dr. Gordon* the ice had been broken and he hoped the interest would soon be much increased. We have too much "hog and hominy"; we want some horticulture as we go along. Let us raise fruits and flowers and be happy.

President—We are not surprised that there are so few members here at this little informal meeting for the appointment of committees, etc. We are to have an address of welcome to-night, and I hope we will see the citizens out then. Before we go away from this place I hope we will all feel as good as Mr. Hall does.

The following committees were appointed.

Committee on Fruits—E. A. Riehl, D. S. Holman, W. P. Stark.

Flowers—Mrs. L. A. Goodman, Dr. A. Goslin, Prof. L. R. Taft.

Obituary—L. Chubbuck, C. I. Robards, C. C. Bell.

Finance—N. F. Murry, F. Lionberger, J. A. Durkes.

Final Resolutions—J. B. Follett, Henry Speers, A. Ambrose.

THE FOLLOWING LETTERS WERE READ:

U. S. DEPARTMENT OF AGRICULTURE, }
WASHINGTON, D. C., Nov. 20, 1886. }

*L. A. Goodman, Secretary Missouri State Horticultural Society, Westport,
Missouri:*

DEAR SIR—Your favor of the 1st inst. has not been replied to earlier on account of my absence from the office. I will say in reply to your request that I shall be glad to have Prof. Riley attend the meeting of our State society if it is possible for him to do so, and I know from conversation with him that he will be glad to attend if his duties will permit him. It is a very busy time with us here, unfortunately, and all that we can say therefore, is that he shall come if it is possible, and you may know if he does not come it will be because the pressing business here will not permit.

Yours very truly,

NORMAN J. COLMAN, Commissioner.

P. S.—I hope you may have the largest and best meeting you have had for years.

N. J. C.

NEBRASKA STATE HORTICULTURAL SOCIETY. }
 SECRETARY'S OFFICE. }
 TABLE ROCK, Dec. 6, 1886. }

L. A. Goodman, Lexington, Mo. :

MY DEAR SIR—I cannot but express my regrets at not being able to meet with you and the Missouri Horticultural Society which is about to convene, and can only say God speed the good work and so let your light shine that your sister Nebraska may receive some of its brightest rays. The Nebraska Horticultural Society will meet at Lincoln on the third Wednesday of January, 1887, and extend a general invitation to your society to meet with us. I promise you a kindly greeting.

Yours Fraternally,
 SAMUEL BARNARD, Secretary.

WARSAW, ILL., November 23, 1886.

L. A. Goodman :

DEAR SIR—Enclosed find program of our annual meeting. Yours received some days ago. We expect to be represented in your meeting and trust that you will return the compliment by sending us a delegate.

Respectfully,
 A. C. HAMMOND.

WARRENSBURG, Mo., Nov. 27. 1886.

L. A. Goodman, Esq., Westport, Mo. :

DEAR SIR—Since writing you I have received notice that the legislative committee will visit our school on December 7th and 8th for examining into its management. This may enforce my absence from your meeting at Lexington, much to my regret. Should the committee change time or make a shorter stay than is expected, I may yet be able to attend at least one day, the last. " " "

Truly yours,
 GEO. L. OSBORNE.

BLUFFTON, Mo., Nov. 16, 1886.

Friend Goodman :

Your card received. If life, health, financial condition of my ex-

chequer and the Missouri river admitting, I will be with you at Lexington. Will send you a paper in time so that if I cannot go it at least will be there. There is a wintry spell upon us just now.

SAM'L. MILLER.

ST. LOUIS, Mo., Nov. 18, 1886.

DEAR SIR—I will try to be with you on the 9th (Thursday), my University classes prevent me from getting away before Wednesday night. I am too busy to prepare a paper, but if you wish, will have a word of good cheer. I shall come to meet your members and to listen rather than to talk.

Very truly,

WM. TRELEASE.

KIRKWOOD, Mo., December 30, 1886.

Mr. L. A. Goodman:

DEAR SIR—I have been prevented by illness from completing my entomological notes in time to send them to you at Westport. I am better to-day however, and will try to get them ready to mail to Lexington to-morrow so that they will be awaiting you on your arrival at that place. I am very glad that you have the promise of a talk on *Fungi* from Prof. Trelease. It will no doubt be very interesting and instructive. I should like very much to attend the meeting at Lexington, but do not think it will be possible for me to do so. Hope you will have a very good and profitable time.

Yours respectfully,

MARY E. MURTFELDT.

MICHIGAN STATE HORTICULTURAL SOCIETY. }
 SECRETARY'S OFFICE. }
 GRAND RAPIDS, MICH., October 18, 1885. }

Friend L. A. Goodman:

MY DEAR SIR—If we have attained any success in Michigan Horticulture worth publishing to the world, it has been the result of assimilating and using that which we have absorbed from the successful practice of others. We are still following that scheme and seek to get all the information possible from those who are laboring in the same field we are. As contributing to this purpose I wish to get some information from you concerning the work of your State society the past year. I want to place in my forthcoming volume an epitome of current

transactions of all the State and Provincial societies in this country, embodying in very concise form the method pursued in disseminating information in horticulture and the means furnished for doing the work, with comments upon any new successful plan employed. Will you kindly write me, at your earliest leisure, a short account of your society work and also append a list of your leading officers for 1886, and command me when I can be of service to you.

Yours sincerely,

CHAS. W. GARFIELD.

The programm for the evening was read and the secretary urged every one to make the meeting as interesting and the discussions as instructive as possible.

The meeting then adjourned and the work of completing the display of fruits was continued, until there were on the tables over 400 plates of as fine apples as were ever seen.

TUESDAY, 7 P. M.

Meeting called to order by the president, J. C. Evans, and a heart-felt prayer was offered by Mr. Holman for our success in our work.

The welcome address was given by Dr. W. A. Gordon of Lexington, as follows:

WELCOME ADDRESS.

BY W. A. GORDON, M. D., PRESIDENT OF LAFAYETTE COUNTY SOCIETY.

Ladies and Gentlemen of the State Horticultural, and visiting members from other Societies:

The Lafayette County Horticultural Society appointed me to deliver, in its behalf and in behalf of the citizens of Lexington and of Lafayette county an address of welcome on this occasion.

You need have no fears of being bored with a long speech : I take it for granted that you did not come here for that purpose, but to listen to the statement of facts as we have learned them from our observations and experiences. One of the principal objects of the State Society in holding semi-annual meetings is that we may become better acquainted with each other; that we may form new acquaintances and that we may increase our knowledge in all matters pertaining to horticulture, by listening to the papers that may be read on this occasion by the criticisms and discussions that may be made upon these papers, and by relating our experiences one to the other as to the best methods of cultivating and caring for the various products of horticulture.

For example A, who has given a great deal of time and attention to the culture and selection of the best varieties of strawberries for profit and also for the family, will tell us what he knows and what he has learned from long observation and experience; B will tell us what he has learned from actual observation and experience about the grape, how to make your selections, how to plant and how to manage your plants after being planted; C having had long and extensive experience in the cultivation of the apple will give us his varied successes and failures; by relating to us his trials and troubles with nursery men, with the codling moth and with the borer; while D will tell us from his observations and experiences with flowers and shrubs, and so on to the end of the chapter.

Horticulture, as defined by a writer in the American Encyclopedia is "the most perfect method of tilling the earth, so as to produce the best results; whether the products are objects of utility or of beauty." This definition being true, we have a wide field in which to prosecute

our investigations in all matters pertaining to one of the most ancient arts known to man.

I trust the members of this society, as well as all county societies in the State, will not cease their efforts to advance the cause of horticulture until it shall be brought to the highest state of perfection; nor until Missouri shall stand forth as one of the first, if not the first horticultural States in the Union.

Ladies and gentlemen, I now extend to you, in behalf of the Lafayette County Horticultural Society, the citizens of Lexington and of Lafayette county, a hearty welcome to the hospitalities of our people. Again I bid you thrice welcome to our hospitalities.

RESPONSE BY THE PRESIDENT, J. C. EVANS.

The speaker was right when he said that horticulturists were not much in the speaking business. We wish to show these people our appreciation of their kindness and hospitality; we are not in the habit of speaking, but we want to say a few words in response to the hearty welcome we have received. We hope we will learn something from them and that they will learn something from us. We think that as a society we are doing well. Twice a year seems not often enough for us to meet, though only a few yers ago we had only one meeting each year. We hope to go on with this work; we feel that we can never let go. We hope the people of Lafayette county will become members and help us. We have commenced the work of adorning the school grounds of the State, and we hope to follow it up till all the school grounds of the State are improved. I need not say anything more; we came here to work and we propose now to start in.

TENURE OF LAND IN THE WEST.

BY G. F. MAITLAND, LEXINGTON, MO.

Perhaps the greatest drawback to successful horticulture among farmers, is the short tenure of land, or the annual renting of farms, in the states in the Mississippi valley. In the older settled States this is not the case—at least to such an extent as in the restless new West.

One of the chief causes of this annual moving, is that land here is held merely as a speculation, and not as a permanent investment which will return a steady, regular income to the landlord. It is very much to be regretted that this speculative holding of lands should be so almost universal as to include not only the large land holders, but a vast majority of those who own farms of moderate size.

Many men will not plant fruits because they want to sell out and go to some far off Utopia, only to wish, when they get there, that they were back on their old farm. But it is to the large class of farmers known as "renters" that this injurious system of renting only for one year proves such a drawback. Many young men just starting in life are compelled to rent for some years before they are able to buy, and having a sweet remembrance of the fruits on the "old farm," would like to plant berries and standard fruits; but not having the assurance of retaining their farms for more than one year, do not plant anything, and at last drop into the slovenly habit of "letting things go."

In Great Britain the leases run from seven to nineteen years, and are so favorable that the tenant can plant all the small fruits, and also many of the standards, knowing that he will reap the benefit of his industry and enterprise. Many tenants live on these farms from babyhood to old age, and it is not by any means a rare thing for a farm to be held under lease for generations by the same family.

As a matter of social and political economy, this kind of land tenure is very much to be desired, as it promotes a spirit of improvement, regular habits, and a more settled and social state of society.

Long leases also create an intense love of home, a desire for the refining influences of beautiful flowers, stately tree and high class practical horticulture.

It is a singular fact that the richness of the soil in any section of country has but little to do with the material wealth, refinement or in-

telligence of the people. If we examine into the cause, we will almost invariably find that where the soil is poor, it is, also, cheap, and there the land-holders vastly outnumber the renters. The people, also, practice a better system of farming; and horticulture, with its refining tendencies, is considered as almost indispensable for the prosperity of the community.

It should be a part of the mission of local horticultural societies to endeavor to foster a desire on the part of tenant farmers for a leasehold, at least long enough to enable them to plant some berries for home use, and also to so beautify their homes by planting flowers and shrubs on a well kept door-yard, that the pleasure of life in the country will be greatly enhanced. There are few things that so fill up our ideal of bounteous plenty as an orchard full of choice fruits, ripening into mellow sweetness in the rich amber light of the autumn sun.

DISCUSSION.

President—Anyone has the privilege of saying anything more on this subject.

Mr. N. F. Murray—I think it is the duty of the horticulturists of Missouri to foster the desire on the part of the people to secure homes. A great many young men go west and "sow their wild oats." What a good thing it would be for them if we could just persuade them to stay at home and raise tame oats, strawberries and apples. Good lands can be bought in Missouri, in sight of a railroad depot, for \$10 an acre.

Mr. Durkes—I think it would be a mutual benefit to tenant and landlord, to build cottages and give the tenants the greater part of the profits in order to induce him to improve the land. We all know that a family man is much more reliable upon a farm than a single man.

Mr. Follett—I am surprised at the position from which this question has been discussed. Can not we make some plan by which the man who cultivates the land should own it?

President—My experience is that both the tenant and the landlord have a hard time. It is difficult to tell which has the hardest time.

THE RED OAKS OF THE LOESS HILLS.

BY W. R. LAUGHLIN, ELM GROVE, MO.

Beautiful, grand, homely Loess Hills of Missouri. Children of the glacier and the currents. The granites blocked out when the Titans heaved up the longest mountain chain of earth are here, unchanged—almost unworn.

The pebble that was loosened by the foot of the wild goat, far above the timber line on the backbone of the continent, thousands of years after the upheaval, is here.

The vast variety of material that through ages crush and wear and wash, have brought from the ten thousand times ten thousand hills and the vast plains that make up the basin of the upper Missouri, are here.

Iron and lime and magnesia, carbonates, phosphates, alkalis and acids, ground out by the torrents, shifted by the blizzards, mixed in the great sluice-box of the Missouri river and its branches, laid down to rest together in the bed of the fresh water lake that was so much larger than is Lake Superior. No, not to rest, for chemical action knows no rest. They solved and dissolved each other. They ate each other up, and, lo! new creations. The mollusk and the fish and the reptile and the water plants did their work of mixing the material of the mud bed laboratory.

A multitude of forms left themselves for us to find in the rocks of to-day—a written history that lacks but little save the power to tell us how long each stage and how long ago all. The currents and the waves built the strata from the shore line to the center, into a wonderful variety of forms but ever of changed materials—now a heavy bed or a thin layer of stone—limestone, sandstone, shale or the nondescript hard black deposit that seems to have within it neither fossil nor structure to tell us of its building, nor any usefulness to commend it to the human race.

Gradually the rim that held in the lake wore away—gradually the waters lowered; and along our bluffs may yet be seen the shore lines that were marked by the waves at each step of that receding. The

mastodon, the elephant and a host of lesser animals, trampled the mud or sported on the drying ridges. Faster the waters cut down the channel that vented the greatest of lakes. Deeper the retreating power scooped out the ravines, and higher rose the Loess Hills. Man came. What man came first—the Indian—no, not he, the mound builder, perhaps? By no sign may we even guess any further back. Time enough will efface from the planet we call ours every trace of all that now is. Of what will be, we know even less than we know of what has been.

Our senses are for present use. The memory of the greatest pleasure we have ever enjoyed can not take away the pain of a bee sting; nor can the recollection of the most cruel suffering destroy the beauty or the flavor of a fine fruit, nor obscure the glory of the trees of the forest. Tell me, if you can, where is there more to enjoy than among the wooded hills that were once covered by the waters of the lake?

It is not, par excellence, a land of corn, nor a paradise of the hog; but it is a land full of pleasant fruits—a land flowing with milk and wine and honey. I am familiar with the sight and the taste of the fruits of our country from the Atlantic to the Pacific, and from the lakes to the gulf, but nowhere else have I seen apples or peaches so grandly planted or so highly flavored as here. I have seen the trees of the tropics, and there is not one of them equal in the gorgeousness of its beauty to the red oaks of the Loess Hills. Bare enough they stand in winter, but not void of beauty even then. The furies of the wintry air, the demons of the gales nor the “frost king” have any power to harm them. See them respond to the breath of spring, and hand from every twig their myriads of pendant flowers. Look well at them in the quiet and the light of the early morning. See them swing in the golden light of the noonday sun, as they yield to the touch of the gentlest breeze. Their form is their own, and their color is the color of red oak flowers. Watch them when their leaves are small, and as the weeks and months go by behold what varying beauty they put on—size, shape, color changing, but ever beautiful. See them when the wizards that inhabit the earth have traveled up their roots, perhaps for fifty feet, have painted a color that deserves to be called red oak green: and the fairies of the air have covered that color with their inimitable varnish. See you, then, the hills covered with such color as the evergreens of the mountains give not to any of their masses.

But, it is October. The wizards and the fairies have been at work, they are still at work. Come with me to my home among the hills of Holt county. At sunrise we will go to the hill top above my house. Look toward the coming sun. An oak covered hill is between us and him. Stand still and see the colors of the crown that hill top wears. The dew and the shadows are there, and the beauty is the beauty of morning. We will go again when the glory of the sun at noon is upon that grove and the hills around us—the beauty is the beauty of mid day. The sun has descended well toward the horizon. All is still. The Indian summer's dreamy haze is in the air. The flood of mellowed light from the setting sun creeps through the haze and falls upon the grove and the hills. Thousands of trees, with millions of leaves are massed within that view. All the world beyond is hid, and the landscape glows with a thousand shades of purple and scarlet and crimson, and gold. Ah, now sweeter, grander, more georgeous than before, is the read oak of the Loess Hills.

Why do we, of the Missouri hill country, bring so many of our shade and ornamental trees from afar while the red and the scarlet and the burr oaks, the solid, grand old sugar maple, the trailing, waving red elm and the ash, almost as beautiful when naked, are all around us? Why do we ransack the globe for fruits to be experimented with here and leave our own pawpaw and persimmon undeveloped? Why do we pass almost unheeded the wild vines that run upon our bushes and fences or climb our trees? Does this earth produce a shrub fairer to gaze upon than our own sumach?

All these are easy of propagation, and safe to handle. They are almost exempt from injury by any insect. Heat nor cold, flood or drouth, has not destroyed them—never will destroy them. They were here centuries ago and they are here still. For a time not even guessed at, our aborigenes, perhaps the predecessors of our aborigenes, have hunted the game and slaughtered each other among all of these. Many pioneers saw in the trees only the rails and the material for cabins. Other many, having eyes, saw and loved Missouri as nature made her, for what she was. Some of these are yet with us, and their posterity is here. The yawhoo still yells his drunken shout, or howls his wretched attempt at a song among all that is beautiful in Missouri. But they are passing away. Take courage. Better people are here, and more are coming. Here's to the retiring shadow—may they ever grow less. Here's to the coming sunshine—may it increase.

Mr. Speer—The paper is beyond my depth, but I think we have some members in this society who can do this subject justice.

Mr. Murray—I don't feel like getting up and criticizing a man who is able to get up such a paper—a man who has spent five years at Washington and has associated with the great men and statesmen of the day.

President—I can appreciate the paper and I indorse everything it says in regard to the Red Oaks of the Loess Hills.

THE USE OF THE BEAUTIFUL.

BY MRS. NELLIE McVEY OF SEDALIA.

The Hindoo dreams of Nirvana; the American Savage, of a Happy Hunting Ground away beyond the setting sun; the pagan worshiper looks to an elysium among the gods, and the Christian turns longing eyes to the promised "many mansions" across the dark waters of Death.

The idea of an eternal rest in a land of flowers and fruitage, singing birds and leaping waters, is taught by all religious instructors, as the supreme good to be attained in the hereafter, by a deserving disposition of time and talents here; and the charm of this mystic country consists largely in its fullness of beautiful things. Language is taxed to its uttermost capacity for terms in which to depict the glory of its indefinite loveliness; and thus, in the breast of every member of the human family is developed a sense of and a love for the beautiful. A sterile country, barren of fruits and flowers and foilage—can any one conceive of such a place as elysium?

So, in our dreams of an earthly home, we seek not alone utility, but are ever striving to render our habitation a prototype of that hereafter, which, from infancy we have been taught to regard as "Our Father's House."

Not alone for pecuniary reasons do we summons the landscape gardener, search out the treasures of the horticulturists, and grasp the beauties of the floral kingdom, but we take a pardonable pride in our work of making the waste places "blossom as the rose." This cultivation of tasteful surroundings, while it enhances the money value of our homeplaces, is conducive to much higher results, and touches upon the best interests of society, as well as the welfare of its individual owner, and is no small factor in all that is desirable in a true education.

We well know that the foundation of character is laid in the home. The making of the man or woman of the future begins here—taste, culture, refinement or the reverse, are fostered and developed by the surroundings of our early years. The adult usually "thinks back" to the old home, and the sacred associations of that sinless time have a deep and strengthful influence, for good or evil, upon the after years of life. In this character-building horticulture plays no mean part; its influence can be only elevating and refining, appealing always to our better impulses, drawing us closer to the great heart of Nature, and teaching lessons of humility and reverence by every plant or flower; fostering that instinctive recognition of the beautiful, which is one of the highest incentives to a pure and noble life.

Emerson says, "a tiller of the soil should be more than a farmer, he should be a man upon a farm, and should reach all the way from God down to the lowest insect." So too, a human being should be more than an animal—he should be a whole man, and this he cannot do amid the sterile necessities of life, discarding the ornamental and beautiful.

There are lessons to be learned from the seemingly most useless flower. The object of toil should not stop at its pecuniary reward; neither should a lesson stop with the merely intellectual, it should reach the morals as well.

A tree, full-foliaged, is a lovely object, yet, how much more desirable if, here and there, a delicate or rich-hued blossom glints among its green leaves! or bending toward the matted grasses with its harvest of ripened fruits!

The home should be made beautiful, by all means; as lovely as spreading lawns, swaying leaflets, graceful shrubbery and fragrant blossoms can make it. Nothing is so attractive as a neat-looking house in its setting of foliage, fruits and flowers. And from such a home, the embryo man will go forth carrying with him a fund of happy memories; and the memory of a happy childhood has proven a bulwark of strength

to many a storm-tossed soul, enabling it to ride, fearless, upon the rough billows of discouragement, anchoring a last in the heaven of rest. Thus fortified, manhood has in its possession a charm no wizard can dispel.

The uses of beautiful things in the formation of character should not be overlooked, as every plant, or leaf, or blossom is a silent lesson to him who reads—a constant reminder of a ruling care above us. Contrast the appearance of the children of such a home with the semi-savages of the gutter and the noisome alleys. The childhood of our greatest minds was spent amid the cool, green country scenes, and they learned to look upward though nature's patient teachings. Some of the finest books in the world have never been printed, yet are spread on all sides of us—open alike to prince or pauper.

If pecuniary results alone are to be considered, this love of the beautiful is powerful to coin gold out of the world's heart. Beautiful things, in whatever guise, are eagerly sought after, and command high prices in all markets of the world. Everywhere this fact is taken advantage of, as seen in the ornamenting and embellishing, by gay colors and beautiful designs, of almost every article of utility. Individuals have made immense fortunes by catering to this growing demand. Fruit and flowers are in almost all designs—nowhere can be found models of greater loveliness.

In the sick room, beautiful things exert an untold influence for good, and many an endangered life owes recovery to the cooling fruits and fragrant flowers of the horticulturists.

Life can never be what it should be made, so long as the home has no higher pretensions than of a workshop or a boarding house. It is not that the farm work is more laborious than others, that the children flee to the city. Trades and professions are but other names for toil—much of it the most slavish, yet we find everywhere the farmer's sons and daughters seeking positions in shops, stores or offices. Too many farmers live like the animals they tend. They eat and sleep and wake to eat and sleep again. If the wife or daughter ask for a tree or shrub or flower, they are refused—because—well, because there is no time to set it out or attend to its wants. And yet, there are so many hardy, beautiful things which only ask a chance to brighten your little world. Home must mean more than a house, and life more than a bare animal existence—a constant drudgery of the muscular system to the utter starvation of the mental—if you would keep the children on the farm, and this can be, in a measure, brought about by the introduction of beautiful things—domestic and social—into the lonely seclusion of

their hungry lives. Gross material utilities can be tastefully disguised, unsightly necessities can be lost sight of among vines and shrubbery, and thus the weeds of disgust and discontent be choked out by the flowers of love and interest.

This is the work the horticulturist is doing and his true value must be measured by the effects of his toil. Horticulture deals largely with the ornamental and the refining of taste; and its mission, while it does not lose sight of the financial, has much to do with the humanizing of all the homely pursuits of life. By its ministering, the power of home influence is strengthened and intensified, and brought nearer to the source of all beauty and truth. The needs of the world are men of honor, intelligence and morality. Horticulture, in its effects, teaches all these and more. It touches the best interests of mankind, in its effects upon the moral and mental character of the private citizen, preserving the integrity of society and the stability of the government; and manhood, developed under its influence, will show a broader charity or a higher taste and a symmetry of character which shall do much to counteract the evils and vices which seem now to rule the world, in the high places of public trust.

Horticulture should be encouraged, if for no other reason, then for the one paramount fact that the uses of the beautiful things which it is yearly giving to the world, will elevate and ennoble mankind as nothing else ever will or can.

IDYLL.

(Mrs. Nellie Watts McVey.)

Sedalia, Mo.

President—Does anyone wish to make any remarks on the paper just read; if not, we will pass to the next subject?

L. A. Goodman—I wish to give an instance of the use of the beautiful. Of all the beautiful evergreens we have, the White Spruce is almost the nearest perfect. It is perfectly hardy. It is a tree of perfect symmetry by a little clipping. If anyone can see a grove of White Spruce and not admire it, it is beyond my comprehension. Another tree, beautiful by shearing is the White Pine. You need not fear to shear it or cut its leading shoot. Among deciduous trees the Tulip tree is a tree of beautiful growth. I think the Sugar Maple stands at the head of the list of our native trees. It is a thing of beauty from the time the leaves start in the spring till they drop in the fall. It is, without leaves, of such symmetrical growth that it is beautiful, even naked. It is of slow growth. Buy trees from three to five years of

age and cut them right off at the ground when you plant them out, thus getting a strong, straight leading shoot.

Dr. Gordon—I think it is one of the most magnificent trees we have. The Poplar is hard to grow. There is another tree I admire very much, it is the Sweet Gum. It is a perfect beauty when growing by itself. It also has a very pleasant aromatic odor.

Mr. Murray—Does the gentleman know of any Sweet Gum trees in this county?

Dr. Gordon—No, I don't know of one in the county.

President—The Sweet Gum is plentiful along the south edge of the State. It is only last week since I was camped among the Sweet Gum trees.

Mr. Follett—In St. Louis hardly anything is planted but the sycamors. The Elm dies, and even the old Locust fails. The Sycamore gives perfect satisfaction as a street tree. I would like to know if the Sugar Maple will grow on streets where you have gas pipes?

Dr. Gordon—I think the people of St. Louis have bad taste to admire the Sycamore.

Mr. E. A. Riehl of Illinois—I think the gentleman is on the wrong track. I think it is the soot of the soft coal that injures trees and not the gas. You can not grow any evergreen tree. I think they must put up with the Sycamore.

President—In the next paper it is propable there will be room for considerable discussion. The subject is "What I know of fruit growing; lessons in fruit growing," by Dan Carpenter.

WHAT I KNOW ABOUT FRUIT GROWING.

BY DAN CARPENTER, BARRY, MO.

That "experience is a dear school" is no less true in horticulture than in other pursuits, I have learned thoroughly, and that others may avoid similar mistakes I jot down my experience in that dear school in a series of lessons as I learned them.

LESSON I—WATCH.

Some lasting impressions, mentally and physically, were made when I was a school-boy by the teacher, with sprouts from a fine orchard hard by the old school-house, and the frowns of the owner—a venerable minister of the gospel—when I failed to raise apples in it without being caught at it. But by diligent study and vigilance, I successfully evaded the rod of the teacher, and the wrath of the preacher, graduating with honors in the lesson of “watch as well as prey” on the delicious fruits of an orchard. Lesson I—“I say unto you, watch.”

LESSON II.

Half a century ago markets were not accessible, as now, in twenty-four to forty-eight hours. To utilize the wasting fruits in the valley of the beautiful Ohio it was necessary to concentrate them into something that would keep and improve with age. The people were not troubled with temperance orators, denouncing the evils of a morning appetizer, a noon stimulator, and an evening refresher. A distillery was a necessity, and at the old homestead I took my first lesson in distilling and the evils of strong drink, and my second in the fruit business.

There were no State entomologists to describe the destructive habits, the voracious appetite, and to warn against the deadly venom of the “worm of the still,” as it poured forth its poisonous stream of *spiritus pyrus malus* and *persica vulgaris* increased by *spiritus frumenti*. But I soon learned from the oaths of men, tears of women, the cries of children and the wretchedness of their homes that “wine is a mocker and strong drink is raging, and he that is deceived thereby is not wise.” Also, that Solomon, with all his wisdom, gave no better counsel to young men than when he said “Look not upon the wine when it is red, when it giveth its color in the cup; for at last it biteth like a serpent and stingeth like an adder.” Lesson—No entomologist or temperance fanatic can portray in too lurid colors the destructive, death-distilling and damming habits of the worm of the still; or too strongly urge its destruction, even to calling forth the energies, powers and resources of the government, as for stamping out the cattle plague. Lesson—Beware of the worm of the still. It is but the chrysalis of the “worm that never dies.”

LESSON III.

We may fertilize, cultivate and prune unwisely. In the years of sweet memory as he who had no home sang of home, so I believe there is no place like home; married a wife and set up for myself in the midst of an orchard which, though planted, cultivated and brought to fruitage by an English gentleman of taste and culture, had, like Ben. Bolt's mill, gone to decay, and in a few years fell, fit only to be burned. Longing to sit beneath my own vine and fruit tree, I planted standard and small fruits. In the morning I put forth my strength, and in the evening withheld not my hand. I manured the soil; dug about the roots; pruned and trimmed early and late. They sprang up like Jonah's gourd vine; glistened in the sunshine; shimmered in the showers; smiled at my caresses; bloomed in their childhood; fruited in their youth, and died in my fond embrace when the cup of joy was full—dashing the cup to the ground—killed with kindness, pruning knife, manure and high culture. In forty years three orchards have grown, fruited and died on this same land. Lesson—We may enrich the soil too greatly, cultivate too highly and prune too closely—forgetting nature, the great teacher.

LESSON IV.

A Commercial Orchard—Where to buy Trees.—Although unsuccessful on a small scale, "fail" had been erased from my book. I began a commercial orchard of twenty-five acres. I asked the advice of old men with orchards; read Barry's Fruit Garden; subscribed for agricultural and horticultural papers; consulted with tree raisers; examined their catalogues and ordered direct from "reliable" nurserymen at Hermann and got forty Ortley and Newtown labeled Golden Pippin, and I lay before you the fruit on one Early Harvest which you can keep till the next centennial and then use as canister shot in defense of your country. From Bloomington I received Ortley labeled Pennsylvania Red Streak, and that's the kind of Phoenix which arose from the ashes of an overweening confidence, and I have everything on the catalogue but what was ordered. Had the old tanner done a little more tanning, perhaps there might have been one less "reliable" nurseryman. From Pilot Knob I got a mixed lot, which the proprietor made good to the extent of one-fifth the cost. From Parkville I have two varieties, under two different names each, and the lauded Gen. Lyon, a veriest humbug.

From Lee's Summit I received three varieties in a lot of five, all for Huntsman, and a non-descript for Hewe's crab. Thus, about 75 varieties are scattered through orders for about 25.

"Where shall we go, or whither fly for refuge" from the relie-able nuresryman? Deal gently with the tree peddler until the fountain is purified. Lesson—Know what you want; select a few known varieties; contract by name, with written agreement to forfeit the price and quadruple damages if not true to name, with responsible parties, and see before you buy.

LESSON V.

High vs. Low Heads.—Twenty-five years ago the cry, all over the land, was "low heads," and not callous to the seductive influence of "wise men from the East," solons of the North, and practicals of the West, I "headed low," in the delusive hope of preventing the destruction "that washeth at noonday" by sunscald from the southwest, storms from northeast, hurricanes from northwest, tornadoes and cyclones from the west.

By diligence and care the orchards sprang up "a thing of beauty and a joy"—though not forever. Spreading low and far, precluded proper tillage, and one by one they yielded. Storms broke down the lowest; hurricanes split the next; tornadoes laid low the next; and the taller the trunk the better the tree withstood the blast. The steadiest trees I've ever seen were ten to fifteen feet to the first branch, and fifty feet to the top, three feet in diameter, and had stood the storms of a hundred years. Lesson—A costly experience is worth a library of undemonstrated theory. Heads that will admit cultivation close to the tree. Seek a just medium between the valley of humiliation and the mount of transfiguration. Study nature.

LESSON VI.

Plant in Old Ground.—Before our Kansas City market was supplied with fruits from the "land of the mocking bird," early apples commanded remunerative prices and an Early Harvest orchard was a mine of wealth. Having no old ground on which to plant, I cleared up, thoroughly broke and pulverized a small tract, and set 260 Early Harvest. Cultivated scientifically, and rejoiced to see 260 start to grow. July's sun produced chills; August malaria, and September death to 100. A second summer's scorching rays laid another 100 in the dust. A third season left but 25, which were transplanted into old land. Two

only are left to sigh in the balmy breezes of a Missouri winter. Lesson—Plant only on land that has been cultivated several years.

LESSON VII.

Pears.—Who is not delighted with a pear orchard? Who weep not over “years of wasted life” in goowing one? I’ve seen \$1,000 melt into thin air, and over 400 promising trees have blighted my fondest hopes. I planted 100 dwarfs; watched with a mother’s tenderness, and pruned and trained with a father’s solicitude. What a growth! What banks of snowy bloom! Bees reveled in their sweetness; young fruit nestled in the glistening foliage.

Each year’s growth was cut back one-half—I had the secret of “the blight.” Alas! alas!

I never loved a dear gazelle
To glad me with its soft black eye,
But when it came to know me well
And love me, it was sure to die.

And now, one only—one lonely—healthy greets me. Of 300 standards, less than twenty are able to bear. Five are in good health; the strongest being a winter Nelis—its feet in the damp, within fifteen feet of a hog wallow, while all others are struck with malaria, notwithstanding they are high and dry. Lesson—Let the pear business severely alone unless you have warm soil, sandy subsoil, and thoroughly underdrained.

LESSON VIII.

Plums.—Observing that the largest groves and best wild plums grew around the head of moist swails, in the edge of the prairies, I had just the place for a grove. So near the henery that the best woman in the world would have to feed her chickens—cheap curelio destroyers—right under the trees. Out went \$40, and in went Gages, Imperials, Lombards, Damsons (my wife dotes on Damsons, as I do on damsels), and a few Wild selects. How anxiously I watched those trees as they reached their branches heavenward, spread their snowy blooming heads in the sunshine, scattered sweet perfume on the balmy air at evening, curelied and—died; the Gages first, the Imperials second, Lombards third, Damsons tottering in decrepitude, while the wild ones flourish as green bay trees, yielding an annual crop of perfume, curelio, sprouts and vexation.

Not a tree left, except the wild, to tell the tale of studying the natural habits of the plum. Our only consolation is in the Wild Goose. Lesson: While man in his native wild depravity is healthy, grows and is happy in his primitive condition, the improved, refined, intelligent and enlightened, cannot prosper amid the rigors of winter, the storms of summer and the malaria of autumn, unless surrounded by means of protection commensurate with his moral, social, intellectual elevation. So the grafted and budded varieties of fruits can thrive only under conditions in harmony with their improvement and refinement over their originals.

LESSON IX.

Failure and Success.—Thus far failure marks every page; and disappointment each special effort. What of it? Though we may fail to grow fruit as we desire, though we may fail to sit beneath our own vine and fig tree, though we may fail to realize our fond hopes, though failure may be the “finis” of every enterprise of this life, and though as we retrospect the years of our pilgrimage failure beclouds life’s setting sun; if we have trusted in the lion of the tribe of Judah, and have labored to promote “peace on earth, good will toward men,” spreading sunshine in gloomy hearts, wiping tears from weeping eyes, doing good in the name of our Father in heaven, as the light of life goes out the pearly gates of the celestial city will open wide to our redeemed spirits, and as we sit beneath the tree of life, eating its ambrosial fruits and quaffing from the river of the water of life, clear as crystal, as it flows from beneath the throne of God, we shall realize that a life of toil and love for God and love for man, though a failure here, is not a failure there, but a grand and glorious success in heaven.

We may not scale the dome of the temple of Fame; we may not attain to honor and renown: the glory of this world may not be ours; thorns may spring instead of flowers; success, as a phantom, may flee from our grasp; the fruits of our labor, like apples of Sodom, may turn to ashes on our lips: disaster and disappointment may crown every effort; happiness, as a mirage, may recede at our approach, and death may claim us in the meridian of brilliant expectations, but no sacrifices are useless, no labor unprofitable, no life a failure that secures us an abundant entrance through the pearly gates into the temple and city of God. Make sure, then, of heaven.

DISCUSSION.

Mr. Speer—We have some persons with us to-night who have not followed fruit growing as a business. They will look over these tables here to-night and see that they give the lie to the paper that has just been read. The evidence of their senses does not correspond with what they have heard. Friend Carpenter is a man of a great deal of humor. He has, perhaps, associated with some of the correspondents of the "reliable" daily papers and drawn upon his imagination for the paper. All of us have had some part of the experience of Mr. Carpenter, but I don't believe that any of us fruit growers would be willing to say that he had made as complete a failure as Mr. Carpenter pictures.

My experience with the plum is much the same as his. The small fruits have always paid me for any labor or pains I have given them. I have made a moderate success of apples. I believe that with intelligent selection of a site and good care we need not have a complete failure. I would not like our friends from Illinois and Iowa to go away with such an impression as this paper might give them if it is to stand as the views of this society.

President—He has written the facts just as he got them from the record he makes of everything he does, and that paper is his experience, and I know it is for he has told it to me over and over. He has told it to me twenty times, but everyone has not had just such an experience.

Mr. Durkes—I think Mr. Carpenter's experience has probably soured him, hence his witticism.

Mr. Murry—I think there is too much malaria in that locality.

President—It is said that malaria makes us dull, so there cannot be any effects of malaria in that paper.

Mr. Laughlin—I am opposed to letting that paper go out as a representation of the reliable nurserymen of the State. There are as reliable men in the business as can be found in any business.

Dr. Gordon—There are so many things to be careful about that it is very easy to make mistakes. You must have a careful, honest man to select the grafts for you and graft them for you, an honest man to send in the order, an honest man to dig the trees and label them. I bought trees from a man who represented them as Fall Queen. I believe they are the Milam. Jonathan proves to be White Winter Pearmain. Rome Beauty was a summer apple.

Mr. Gaunt—I want to say that I have been in the nursery business for thirty yeaes. I have a great deal of pride, not vanity, in saying

that I never recollect having any mistake in my nursery. I think every intelligent nurseryman should know his trees like he does his children, just by their looks.

Mr. Laughlin did a very honorable business. All his trees truned out true to name. I have made for myself a similar record. It is very provoking for nurseryman to send me anything I did not order. When I began the business they told me I would fail. The bitter precaution I received made me doubly careful in selecting trees true to name from which to propagate my stock. I have simply done my duty. Like Crocket I was sure I was right and went ahead.

President—Mr. Carpenter's experience was several years ago, when the nurseryman's business was not as systematic as it is now. He has a record of everything he ever did, and writes from his record. He has related only his experience.

Mr. Laughlin—He has not then told all his experience.

President—In talking with Mr. Carpenter not long since I said: "Dan, get us up a paper that will create discussion." He said he would do it. I received a letter from him, in which he said he would send the paper and make it as near like I wanted as he could.

The following letters were read:

PROTECTING FRUIT TREES.

LEE'S SUMMIT, JACKSON COUNTY, Mo., December 6, 1886.

Mr. J. C. Erans, President Missouri State Horticultural Society :

DEAR SIR—I had intended to be present at your meeting at Lexington, but I shall be necessarily detained by being a witness in the United States court and other business, so I will have to forego the pleasure. I send you a small bundle by express to Lexington, containing a few trees wrapped with my wood protection against rabbits, mice and borers, also some of the slats to show the material as it comes from the factory where it was cut for me. I have nearly 20,000 trees wrapped with this wood covering in the manner shown, and I find it the most complete protection to my trees I ever used. My losses last year from mice was serious, and I felt my orchard enterprise was much in danger from their ravages. Now I feel secure against rabbits and mice—also borers if the covering is left on during the summer.

When the wrapping is put on we scrape the earth away around the trunk of the tree for an inch or so deep, and when the wrapping is finished pull back the ground taken away, leaving the wood covering two inches in the ground. The covering is put on while the material

is wet so it will bend freely and the slit in the wood where the wire is put on is made for the purpose of preventing the wire from dropping when the wood shrinks by drying. I find the material cheap, durable and easily put on, a man and boy wrapping 500 a day.

The practical value of this material to protect young orchards is, in my opinion, very great, and when generally used will encourage commercial planting, from the absolute security it gives to the young trees.

You will please call the society's attention to this manner of protection, and accept this package of material as my contribution for the benefit of Orchardists in general.

Respectfully yours,

JAMES A. BAYLES.

CLINTON, MO., August 5, 1886.

L. A. Goodman, Westport :

DEAR SIR—I have thought for sometime of writing you in regard to an invention of mine, which I think will be of great benefit to every man that raises an orchard or even has a few trees in his yard or garden. I have not had it patented and would like to give it to the State, or give the State the benefit of the invention. I have had it in use in my orchard for two years, have been testing it on a small scale for several years and find it a success in every respect; to prevent rabbits from peeling the trees nothing could be better; and I never have had a tree injured by borers that was protected by it; it is simply wire cloth such as we use for our doors and windows to keep out the flies. I get it by the bulk for one and one-half cents per square foot, which makes a very cheap protection. I get it twenty-two inches wide, which makes it plenty high for young trees; it can be cut in strips and rolled on a broom handle, or rollers can be made of wood similar to those used by tanners, which will make them very rapidly; they can be opened out and placed around the tree and will spring together and stay without any fastening. It will last several years and are so cheap that if we have to replace them with others it won't cost much. I have some closed at the top and some open, but I can't see any difference; it has proved a sure preventative in every case, every one that has seen it speaks well of it. Some of our horticultural men here have suggested that it would be well to have it patented so that no one could steal it from us and then turn round and prevent us from using it; if the State Horticultural Society sees fit to do so they can. I don't care, so every body

can use it; you can see that it does not exclude either light or air. Let me know what you think of it. Our county society has been dormant for some time, but I am in hopes it is about to awaken up now and do something; we have a meeting appointed for the 7th inst.

Yours truly,

M. G. CONDON,

President of the Henry County Horticultural Society.

WEDNESDAY, 9 A. M.

Meeting called to order by the President, and the regular order taken up.

REPORT ON ORCHARDS.

BY D. S. HOLMAN, SPRINGFIELD, MO.

Officers and Members Missouri Horticultural Society :

As one of your committee, I am again expected to report something of the yield, growth and condition of our orchard in the southern portion of the State.

Our prospects for an apple crop, as reported to you at Louisiana in June, have been realized pretty generally in that quarter—in Greene county. I think I may say we had a yield of 80 to 90 per cent. in quantity and the quality was very much better than last year. The development of full size of late varieties was perhaps prevented to some extent by drouth which came to the country generally in the latter part of summer, but even this was not very hurtful, as they ripened better for winter keeping, than had autumn rains prevailed.

Our trees, too, from same cause are thought to be in good condition for the winter, having ceased to grow early and were ripe in new wood to the very tips before winter came.

We had no peaches and most parties are so thoroughly discouraged by successive failures of this delicious fruit as to cease planting the peach. In counties southeast of Springfield, peach trees are being liberally planted.

Pears are not largely planted, but some of our orchards contain a few hundred trees—they were not visited by blight to any considerable extent last year or this—gave a fair crop of good fruit, which sold readily at good prices. There is at the nurseries a call by planters for more pear trees for further planting. But for profit, our orchards consist mainly of the apple, and in our largest orchards more recently planted we have but few varieties—such as are found to pay best.

The treatment of our orchards, as complained of in former papers, is not yet much changed—rapid, large extension is the rule with many, leaving the afterwork too much for nature, as they call it, to perform. There are many very gratifying exceptions to this nature system or practice of neglect, whose results must, by demonstration, work a change which is beginning already to be observed. This class of men plant new orchards to some suitable crop, potatoes, corn, etc., which requires about such cultivation as fruit trees want, and the result is very satisfactory. This treatment is even carried by some into the mature orchards in full bearing—the result there is a healthful, steady growth. A more satisfactory crop of apples, freer from insect injury—larger in size and nearer perfect fruit every way, and this fruit sells for these few men on the market at better prices, sufficient to bring buyers into the orchard without coaxing, and the premium received for good apples pays amply for the use of the plow. Whereas the orchards neglected and left to nature, without pruning hook or plow, yield as best they can apples of size to be expected—most difficult to pick at harvest and the sales each year of cider apples increases from such orchards, which begins already to verify the statement formerly made at one of your meetings, that barrels would not long be wanted by men who neither prune nor cultivate—since cider apples and worms are shipped in bulk and handled with a scoop, and, I will say, shaken from the tree.

I may be allowed to say that our orchards are at least in the right place. Southwest Missouri has no malaria to sicken men or trees. The atmosphere, soil and altitude are so adapted to fruit growing as to make the orchard an assured source of large profit. When the general

practice shall find the intermediate and wise treatment, and help nature to develop the wonderful resources of the fruitful highlands of the Ozarks.

Respectfully submitted,

D. S. HOLMAN,

One of Com. on Orchards.

REPORT ON ORCHARDS.

BY CHAS. PATTERSON, KIRKSVILLE, MO.

Considering the short crops and general depression of agricultural products, and the very light attention generally paid to orchards, I think the latter have much better returns in proportion than most anything else the past season. Notwithstanding the very severe drought, and a full average depredation of codling moth, etc., we had a fair proportion of good, marketable fruit. In the early part of gathering time the outlook for disposing of our surplus looked very unpromising, as few, if any, have ever been known to make money by buying to ship, and therefore refused to invest; but a very unexpected demand sprung up by farmers' wagons from close by in Iowa, where the crop was said to be destroyed by a severe storm, and hail in places in early summer, quite extensively. This may never occur again, and even be reversed, although the people of that State make quite discouraging reports of disasters by winter damage and killing. The price realized probably averaged fully 25 cents per bushel in the orchard, the buyer generally helping to gather them, and sometimes doing it all, and considering how they were graded, this must be accepted as very satisfactory.

My own experience is again somewhat contradictory and confusing. Some of you may recollect my last year's report, stating how I had fought the codling moth with some \$40 or \$50 worth of labor, and found my fruit far worse eaten than that of any of my neighbors. This year I was fully determined to make a change of tactics and steal a march on them by sprinkling with paris green, but I let the earliest op-

portunity slip, and later I dared not do it on account of raspberries growing under the trees. The result was that I had no more than my average share of damaged fruit. I regret not having experimented on a few trees, but am rather satisfied to have my \$7.00 worth of paris green on hand, rather than expend more labor on it with misleading results.

As stated in previous reports, I still keep cultivating my orchard, and intend doing so as far as I can see ahead at present. I admit that a certain representative neighbor, who planted at the same time and about the same number I did, had some fruit two or three years before I had any, though he has hardly cultivated any before this year; I admit that his fruit this year was fairer, freer from scab and worms, and rather larger than mine, so far as he cultivated them and had the same variety. But my trees will average nearly or quite as large again as his to-day, and I therefore stand chance of four doubling, if not ten doubling his crop in the future. While he had some apples before I did, my first crop three years ago sold for more than his did this year, which was his first for market worth naming. Part of this is due to mine being nearly all Ben Davis, while his are only one-third or one-fourth of that sort, and I think it worth remarking here that this is probably about the proportion of Ben Davis trees in the county, while three-fourths or nine-tenths of the apples sold this year have been of that despised variety. I will plant small quantities of several others untried on our soil, but if you would contract to take all I could grow in twenty years of most well known sorts at \$1.00 per bushel, I would be content to grow Ben Davis at 25 cents.

I regret severely that duty seems to make a stronger demand on my attention at the Cider and Cider Vinegar 'Makers' convention at the same time of your meeting. I have just started a power cider press and mill, by which I hope to utilize all the small unsaleable fruit in the county in the future. But I find competition in vinegar and even cider to be fully on a par with oleomargarine, and a large number of people prefer to buy and sell and use them for boarders, because they are cheap. So far I have seen very little vinegar on our market that was not made of sulphuric acid (except home-made cider). This is admitted to be very injurious to the teeth and general health. I submit if your society should not take initiatory steps for legislation to protect innocent people against such vile stuff, as has been done in some other States.

CHAS. PATTERSON,
One of the committee.

Mr. Gano—Crops and prices have not been very satisfactory. The Ben Davis has suffered greatly from the drought, especially the orchards that were full. Many of the trees dropped their foliage and stood there bending with their loads of fruit. These trees are now in very bad condition. I find some orchards, those that were well cultivated, in a much better condition, and the higher the cultivation the better the condition of the orchards.

President—We would like to hear from the northwest part of the State and from Illinois and Iowa.

Mr. Chubbuck—I would like to call the attention of the meeting to the use of paris green. Just before I left St. Louis, Mr. Murtfeldt, a member of this society, called my attention to the fact that Prof. Forbes thinks that paris green is to some extent taken up by the apple and that it might be injurious to eat that fruit. He would like to have the experience of the members of the society, if they have had any, in the matter.

Mr. Laughlin—It seems that we may fight the codling moth one year and have it worse the next year. I suggest that Mr. Patterson caught the enemies of the codling moth more than the moth itself.

Mr. Patterson—We caught them by means of bands on the trees. We caught the worms as they descended, so we caught the codling moth and nothing else. We missed the chance to use the paris green.

Dr. Goslin—I would like to ask the members of this society if paris green does any good? It is death to everything that eats the foliage, but the codling moth does not eat the foliage. And I would like to know if a single member of the society has ever had any benefit from its use. I don't see how the paris green would have one particle of influence in exterminating an insect that does not live upon the foliage.

Mr. Goodman—At the meeting of the American Pomological Society, at Grand Rapids, instances were given, in numbers of cases, where its use had been successful. Mr. Moody, of Lockport, used one pound of the green in forty gallons of water. He has used it for five years, and he has had scarcely a fruit affected, and others report the same. Prof. Cook, of Michigan, examined the leaves and fruit, and had them analyzed chemically. He put sheep and goats in the orchard, mowed some of the grass and gave it to a horse, and in no case did any bad effects follow. The cost of sprinkling an orchard three times is about two cents per tree, and he found this sufficient to save the fruit.

Prof. Tracy—I think there can be no question as to the efficacy of the paris green, when it is applied at the right time. When the egg hatches the green is probably absorbed through the skin of the body,

just as many other insects are killed by the Pyrethrum powder. I do not think the green has any effect upon the moth. I don't think you need worry over poisoning any one. In no case have the chemists found a trace of arsenic in the apples. Some years ago the same question was raised in regard to the use of paris green upon potatoes.

Mr. Richl—Would not the green destroy vegetable tissue as well as animals, if it were taken in solution?

Prof. Tracy—That depends upon how it is applied. A student in the university tried paris green upon plants in various ways. Put on the soil in which the plant grew, it had no effect. He made a cut in another plant and put in some paris green and bound up the cut, without injury to the plant. Plants were killed by a weak solution (Fowler's) of arsenic.

THE LIFE OF AN APPLE TREE.

BY CHAS. TEUBNER, OF LEXINGTON, MO.

A prominent horticulturist made the statement, in my presence, some years since, that an apple tree was of little profit after its twenty-fifth year; or, in other words, its time of useful service was then over. Taking the average bearing tree, under the treatment and conditions in which they are found in these days, I believe he came near, though perhaps over, the mark. But I have seen abundant evidence that such need not be the case, and that we can add from five to ten, or more, years of usefulness to this, our "king of fruits."

The primary causes which lead to the shortened life of an apple tree, according to my views, are:

1. Poor or exhausted soil, or such which does not afford proper drainage.
2. Overbearing.
3. Allowing the trees to stand for years in sod.
4. Omitting to replace artificially to the soil that fertility of which constant fruit crops (and washes) are fast draining it.

5. The want of sufficient moisture during our severe seasons of drouth, which leaves the tree in such a feeble condition that if the drouth is followed by a severe winter, the tree often succumbs, as do the half-starved cattle on our western plains, under winter's icy blasts.

In short, it is the enfeebled, or exhausted condition into which the tree is forced which causes it to die prematurely.

There are secondary causes of delay, e. g., such which result from the injury done by borers, rabbits, mice, cattle and sheep, the plow-share and doubletrees, heavy pruning, and the sowing of grain among young trees. These, however, are only so-called "accidents," due either to carelessness or lack of horticultural knowledge.

In order to give our trees a longer lease on life, we must hold the following points in view :

1. A rich, deep, well-drained soil.
2. A strong constitution.
3. Prevent severe drains upon the constitution from overbearing.
4. Proper and sufficient nourishment.
5. Anticipate the enfeebling effects of our severe drouths.

I will try to explain the five propositions just enumerated, taking them up in the order named :

First point.—Regarding the effect of rich, deep soil, I will give my experience with an orchard on our old homestead in Hermann, Mo. On it my father planted in 1847 and 1848 some fifty acres to orchard, mostly apple trees. About one-third of this orchard was planted on the flattened ridge of a hill, one-third on the eastern side of it, and the other third on a lower level at the foot of the hill. In from twenty to twenty five years the trees on the side of the hill gradually died off, those on the ridge soon following, but those on the lower ground stood for years after the others were gone. The reason for this is obvious. While the trees on the hillside and ridge were being deprived of the rich layer of top soil, by rains and melting snows, the trees on the lower ground not only retained most of the original soil, but received valuable additions. I will add that some of the same varieties which stood on the lower ground were also distributed on the side and ridge. Similar examples can be seen in almost every large orchard in hilly sections. It is a serious mistake to plant apple trees on poor soil, yet I have frequently heard men say they would plant trees on a certain piece of ground because it was fit for nothing else. Nor should it be so steep that the best soil is soon washed away. An apple tree requires generous fare, because the large crops of fruit it produces are a heavy drain upon its system, besides this, it deserves good fare, because it brings large returns on the investment.

Second point.—A strong constitution should be built up from the start, hence it is best to plant thrifty, young trees, keeping them well tilled and protected from injuries. All planters of experience agree that young trees give the best results. They start off quicker than old trees, become better established, and will, therefore, be apt to live longer. Rich soil and cultivation will not only make a tree thrifty and strong, but it also tends to save it from the injury due to early bearing. In thus building up a strong constitution, the trees will require several years longer to come into bearing, but the future will show a balance largely in favor of such trees, both as to product and longevity. To prove this assertion, I will call attention to the fact that trees which naturally come late into bearing, and are strong and robust growers, (probably because of this) as for instance the Yellow Bellflower, Northern Spy and Large Romanite, outlast by from ten to twenty years such early bearers as the Winesap, Ben Davis and M. H. Pippin and others.

Third point.—By overbearing many young trees are irreparably injured. Many planters, however, are so much afflicted with the nicker in their eye that they sacrifice the prospective dollar. In other words, they are so eager for a crop that their trees die of a broken back long ere their days of usefulness should have been over. Trees just coming into bearing should be carefully watched, and if the crop promises too large for their strength, the evil should be averted by thinning out.

Fourth point.—Sufficient nourishment must be supplied. Where the soil is not sufficiently rich it should be made so by applying manure, fertilizers and ashes, or repeated crops of clover plowed under. There is nothing that will begin to compare with wood ashes for strengthening and renovating apple trees. It is the true elixir (if I may so term it) of apple tree life. Nothing is so deleterious and exhausting in its effect upon trees, especially young ones, as grain, while long continued grass sod comes in as a good second. Sod, as well as grain, enfeebles trees to a great extent by draining the soil of moisture just at that time when trees stand most in need of it. Witness the dying off of timber in the woods after the grass has once taken a firm hold. After a few years of cultivation in a young orchard, clover may be sown to advantage, especially if the first crop be used as a mulch, and the second crop is plowed under to enrich the soil.

The fifth and last proposition, that of mulching, is within reach of all. For this purpose straw, cornstalks, grass, and even weeds will answer, or as already mentioned, clover cut in the orchard is near at hand and easily applied. Mulch is a prime factor in keeping a tree at a vigorous, healthy growth; it is a stone house upon which the roots

can draw for supplies, instead of being forced to skirmish around in the parched soil for a few drops of moisture, like "the ancient cow with the crumpled horn, must browse on weeds instead of corn." Enriching the soil in an orchard with manures, is for many an impossibility, but a mulch answers to a great extent the same purpose, because it retains the necessary "*aqua vite*," and with a plentiful supply of moisture, trees will flourish even in moderate soil. We have proof of this in seasons of copious rains, when crops of all kinds will flourish on soil which in ordinary seasons does not produce enough to pay for the cultivation of it.

The rain which falls from the skies, and the air about us contains more plant food than many would suppose. Let me cite a point in case.

A noted investigator planted in a tub, in dry soil, a small willow, first weighing the soil, and applying water whenever needed. In seven years (if my memory serves me correctly), the willow had grown to quite a tree; it was then taken up, all the earth washed from the roots, the water evaporated, and all the soil dried as before. He then weighed it and found that there was but a slight loss of soil, less than a pound, yet he had produced a tree which weighed nearly as much as the soil in which it grew, without having added anything but water.

There is another fact to be borne in mind, which is, that water predominates largely in all vegetable matter. Take this same willow, evaporate the water, burn the wood and what is left? Nothing but a very small proportion of its former weight in solid matter. As with the willow, so it is with the apple tree, only in a far greater degree, if we include its fruit, for this contains about four-fifths or eighty per cent. of liquid matter to one-fifth, or twenty per cent. of solid matter. An example which forcibly demonstrated the value of mulching came under my observation the past summer. In my yard is a Ben Davis tree, about twelve years old, on the body of which the bark was gnawed off several years ago by mules, to such an extent, that when I purchased the place a year ago, I considered the tree past all redemption. It had never borne fruit, and the limbs on the injured side, (or almost one-third of the tree) were in a dying condition. The tree stood where it was convenient to pile our stove wood, so last winter and spring I piled wood all around it, four or five feet high, and in a radius of six or seven feet. After blossoming time, I noticed that fruit had set, and kept on growing, on the sound limbs, and this part of the tree not only showed a considerable improvement in growth, but even the diseased limbs showed renewed signs of life, and even attempted to ripen a few

apples. The improvement continued all summer in spite of the drouth, and contrary to my last year's predictions, ripened one and a half bushels of nice apples. I am sure the tree would have died in a year or two, but for the mulching effect of the firewood.

Before I close, let me add a word of caution to the inexperienced. Never apply mulch close to the trunk of a tree, because under cover of it mice will be sure to girdle the trees, old as well as young, as effectually as a rabbit can do it. Besides, it would benefit the trees but little, because the fibrous roots or feeders, which are the ones to be benefited, are farthest from the trunk. In order to get the best results from mulching, it should be put on with a lavish hand, especially on poor soil, and it should extend out beyond the extremities of the limbs, leaving an open space around the trunk of from two to three feet or more in diameter, according to the size of the tree.

I have dwelt at some length upon the subject of mulching, because I realize its importance more and more, and because I am aware that but a few practice it as it should be done, and many are not fully aware of its far-reaching and beneficent effects. I feel confident that if it was universally applied we should hear less of winter-killing, of sunscald, of borers or of short-lived trees.

CHAS. TEUBNER.

ORCHARD LESSONS OF THE PAST YEAR.

BY N. F. MURRAY, ELM GROVE, MO.

That experience keeps a good but very dear school, is an old saying, but one the truthfulness of which we all have had demonstrated on many occasions. Why not, then, give others the benefit of our experience, map out the road over which we have traveled, marking plainly the points of failure and of success, that they may prove a help to our brothers struggling for the goal of success, and often failing to reach it for want of such friendly guide-posts.

In order that we may assist the horticulturist on his journey, let us be careful, and, as far as possible, avoid mistakes in putting up our guide-posts. Let us be sure to have them point in the right direction and give the correct distance.

The writer still has a vivid, but not pleasant, recollection of either the absence, or dim and unreliable statements of the guide-boards along the public highways in new and sparsely settled countries traversed in his youthful days. So, farther on in life, while following our favorite pursuit of horticulture, we are often in doubt, bewildered, or even for a time lost on what at first appeared to be a plain road to success.

From whence come our troubles? I believe chiefly from the variations in soil and climate, and from lack of knowing in what localities to plant given varieties of fruit.

Hence, it is of the highest importance for all who wish to reap the benefit to be derived from the experience of others, to note carefully where the trial has been made, character of soil, climate, market and variety of fruit.

Our orchard lessons of the past year have been mainly learned while at work in the orchard, by comparing notes with other fruit growers in our local society, and by contact with fruit buyers.

My orchard is located on the hilly, bluff land of northwest Missouri. This formation is mostly a bed of marl, varying from fifty to one hundred feet in depth, and is perforated with orifices from top to bottom. These perforations constitute the most thorough system of drainage that can be imagined, and the material of these marl beds is, to quote Prof. Swallow, "of inexhaustible fertility."

The land on which this orchard grows has been constantly in cultivation for forty-five years—has never been manured or clovered to an extent worth mentioning.

Last winter was long and severe, the cold at one time reaching 27 degrees below zero. As the winter wore away we grew anxious for spring to come that we might learn what prospect for fruit the Storm King had left us.

When at last the trees began to bud out, we were agreeably surprised to find the damage much lighter than we had reason to fear, and we soon beheld our apple, cherry and plum trees one mass of bloom, and while, of course, we had no peach bloom, we found the young wood was in good condition, even the young shoots from old trees that had been severely cut back.

On my Wild Goose Plum orchard I concluded there was enough fruit set for a crop if protected from curculio and gonger. So went to

work with canvass stretched under the tree, and jarring the tree to shake the pests down, and carefully killing them. I found but few—not one to where there was thirty last year—concluded our last year's catching had the good effect to hold them in check so far that they would do little or no harm this year, and quit hunting them.

Cultivated the orchard thoroughly, picked up and destroyed the wormy fruit as it fell. Began shipping north by express in twenty-four-quart cases on the 6th of July, and shipped the last July 21. Net proceeds, \$1.75 per case; total from one-half acre, \$156.

The Wild Goose is grafted on Wild Plum—Sloe—stocks. About ten years ago a wind storm broke off several trees near the ground at one end of the orchard. Several shoots from the Sloe stocks grew into trees and bore abundantly. I found that most of our Wild Goose fruit grew on those trees nearest the Sloes, and I feel safe in saying that three-fourths of all the Wild Goose picked from that orchard came from the one-half of the trees that stood nearest to the wild trees. I am satisfied beyond a doubt that in order to make sure of good crops of the Wild Goose, they must be fertilized by the Pollen of other varieties. I made one small shipment of very nice Miner Plums for a neighbor. Net proceeds, \$1 per case. Reported slow sale on account of native plums being plenty in the market. I am confident that the early varieties of our native plums are the most profitable for market.

EARLY APPLES

were abundant. I began with Early Harvest, our standard earliest apple. Shipped north by express, netting 90 cents per bushel at first, and dropping to 35 cents, but coming up again on good fall apples to 50 cents.

From experience of years I am convinced that good varieties of early summer and fall apples, selected so as to ripen in succession, will pay well if properly picked and handled.

WINTER VARIETIES

mostly set very full. Winesap, as I then thought, had enough for one-half crop. All varieties grew well till checked by the severest drouth we have had for years.

Ben Davis seemed to suffer most, which I attribute in part to the roots running nearer the surface than the roots of most varieties, and partly to the fact that being so large an apple there were too many set for the trees to mature well. By July they were badly crowded, and

it seemed impossible for them to make merchantable apples. Later many of them were crowded off, and light showers in August and September brought them up to a passable size.

Winesap.—Had plenty of room to grow, and grow they did till the trees were full and loaded down with the finest crop we ever had.

I sold my whole crop of winter apples, without having them culled, to one buyer—Mr. Hatfield—at forty-five cents per bushel, at home station.

Net proceeds from seven acres, \$1,000, clear of all expense for gathering and hauling.

The price received was at least ten cents per bushel more than the average price paid for apples in our county this year. I attribute our success to

THOROUGH CULTIVATION

and careful pruning. By no other means could we have grown such apples in such a dry, hot summer, on trees planted sixteen years ago on land already very much worn, and at the same time secure six to twelve inches of new growth and plenty of fruit buds for a crop next season.

This agreeable lesson confirms my faith in thorough and continuous cultivation, and careful annual pruning from the time trees are planted till they cease to produce paying crops; then cut them down and burn them. Why should old, dilapidated, half-dead trees, full of disease and prolific breeders of insects, cumber the ground?

ONE ADVANTAGE

of cultivation is that the rough, broken and mellow condition of the soil fits it for receiving the rainfall more rapidly than a smoother, more compact surface, and for retaining moisture much longer. I think this the best way to irrigate in Missouri. Another advantage is the cutting and breaking of roots, thereby greatly multiplying fibrous roots, increasing the vigor and fruitfulness of trees. In our own orchard—the seven acres of sixteen-year-old trees—we have but four dead trees, and only ten that are damaged to an extent worthy of notice. We learn, through our local society, of one man in our county that can hardly read or write, yet he has an orchard which he plows deep and cultivates thoroughly every year; and lo! we behold this man growing the finest apples received at the principal shipping station of our county—the wonder and admiration of all who saw them.

In the early part of last summer I noticed but few apples damaged by the

CODLING MOTH,

and was led to believe that they had received a check from some natural cause, and that for once we might escape. But later, when the second brood got in their work, I found plenty of wormy apples. I see no hope of getting rid of this pest without organized, systematic and general effort for their destruction.

One of the greatest discouragements to the fruit-growing industry is the high rates charged by the railroads for transportation. These rates are based upon "what the article will bear," not upon what they can afford to carry for. The rate now charged for 100 or 200 miles is as much as it should be across the continent. When, last summer, a committee from our county society made an appeal to one of our railroad officials for a reduction of rates on apples, we were told: "You Missouri farmers want too much for your apples. Michigan growers are now selling apples at forty cents per barrel." Their plan on this subject, seems to be based on the theory that the grower will take a mere pittance for his apples, rather than let them rot in the orchard. Grant that to be true, and that it might be wisdom on the part of the producer, where is the encouragement for further enlargement of the business if the net proceeds must go to swell the purses of the railroad kings of this republic. These very roads were mainly built by gifts from the government and the people, in lands, money and bonds. These were given in the belief and expectation—based on the promises of the men who solicited them—that transportation, like other business affairs, would be a matter of competition; that rates would be reasonable and just to all concerned. Instead, we see too much of combination and of extortion.

I learn from Mr. Hatfield, to whom I sold my winter apples this year, and who has been in the trade for a number of years, that he sold Missouri apples this year in competition with apples from Michigan; that there was a decided preference among buyers for Missouri apples, because of their better appearance and quality, and also the fact that they were keeping much better; that this year it took two bushels of Nebraska wheat to pay for one bushel of apples; that buyers prefer apples in bulk to having them barrelled. Mr. Hatfield also thinks there is no danger of overstocking the market with large, high-colored, smooth apples.

HOW SHALL WE GROW THEM?

Select good and suitable varieties.

Plant none but sound trees.

Plant them carefully.

Give them plenty of room, so tree and fruit will have sufficient air and sunshine.

Prune, cultivate and feed them.

Fight the codling moth.

Visit the orchards of our most successful fruit raisers at the time of their harvest.

Join our horticultural societies; attend their meetings; learn all you can, and put it in practice.

Labor diligently and wait patiently, and in due time you will reap the grandest of all harvests—rich, beautiful fruits, that will repay you, in both pleasure and profit, for all you have invested.

WHERE SHALL WE PLANT OUR ORCHARDS, AND WHAT
SHALL WE DO WITH THE OLD ONES.

BY J. A. DURKES, WESTON, MO.

On yonder hills, where the primeval woods,
Form a barrier to cold winter's blast,
Those hills, whose shelving rocks o'erhang
The flowing stream, from whence cool dews and vapors mild
Arise, and nourish plant and tree and flower,
Here, let our orchards planted be, and here
Will our Pearmain's crimson, and our Pippins blush
With rip'ning fragrance 'neath October's sun.

—ANON.

The improvement upon the adaptability of all our standard fruits to different sites and soils for untold ages has been the study of man, and to-day we see how kindly they have yielded to all the varied arts

of cultivation, his wants and desires have subjected them; and it is with a widespread interest and an unflagging zeal that we still pursue the beaten track, hoping by experiments and discovery to improve and find the suitable kinds for the immense domains yet unplanted.

The difficulties, the successes and failures of the fruit grower are so various in results, an attempt to prescribe for the ills, or point out the proper methods by which better results could be attained, would task indeed the wisest among us.

Favored as the great fruit regions of Michigan and other States bordering the great lakes have been, many fears are entertained already that the continued clearing away of the forests will so change the temperature by the freer admission of colder currents of air from more frigid fields that the fruit crops of the future will be changed very materially.

The pioneers, in their settling of the west, chose always, where possible, some spot sheltered by surrounding hills, near a living spring, where their first clearing was made. In those places their first few fruit trees were set, while in the corner of the fences the seeds were planted. Thus doubly protected by the surroundings, the continued gathering of vegetable mold accumulating in those corners, the trees of all kinds, we are told, bore abundantly and almost annually. Old settlers claim that before the vast forests were cleared the Indian summers were longer and the winters milder. The decaying masses of vegetation, the heavy coating of leaves spread over the soil, which the undergrowth and fallen brushwood kept from being blown away, prevented the freezing of the ground through which the warmth could ascend, and this, with the vapors arising from the mouldering masses, had such an effect upon the atmospheric condition as to ameliorate its harsher aspect and afford a more genial temperature.

But the design of this paper is to speak of the apple orchard, its location and some of the soils most suitable to the tree.

The apple has been acclimated in almost every part of the temperate zone, made to thrive and produce in soils, conditions and situations far removed from its original haunts, and both as a food and luxury made subservient to millions, and highly honored in mythology and song.

The apple tree thrives best upon soils containing vegetable loam, such as is furnished by decaying leaf and wood, hence the reason why timbered lands are preferable to prairie, for healthier, long lived trees and more perfect fruit.

The best districts for the apple tree, says London, through the Isle of Britain and the continent, is where the soils are more or less calcareous, and in all districts most famous for their production limestone gravel and subsoil predominate.

A clayey loam, porous enough to give good natural drainage, with an underlying stratum, stiff and in some degree tenacious, so as to hold the summer's moisture, gives the most perfect, best flavored and highest colored fruit.

The hillsides, the valleys, we may say the bluffs that border the Missouri river, possess these qualities in a high degree, in fact our State orchard products are becoming more noted every year.

The fruitful banks of the Hudson, the beautiful hills of the Ohio and the limestone bluffs of the Mississippi, have long since attested to these facts by the excellence of their productions.

Soils, though rocky, apparently poor and possessing only small proportions of loam, are well adapted to nearly all our fruit trees. The continual disintegration of the rocks by heat and frost are constantly producing the elements requisite for the development of trees and fruit, besides there is warmth in such positions well adapted to special varieties.

In well sheltered locations we cannot see that the inclination of the ground toward any point of the compass makes much difference; changes of seasons would be more noticeable in its effect upon these points. When the season is a very dry one, the inclination from the sun's rays would be most desirable, and vice versa.

Should our springs be foul, cold and damp as a rule, south, southeastern and southwestern would be our choice to produce desirable qualities. While the higher elevations are the best for all purposes, many varieties will be found better suited to the lower parts than others, the richer soils, damper atmosphere seeming to suit their wants. Of these we have examples in the Newtown pippins, Rawles Janet, Stark and others; those of late blooming habits will be such should be planted there, since they will more likely escape the late spring frost such localities are subject to.

In this latitude apples of northern origin, such as the Baldwin, Spy, King and Jonathan, to prevent their premature dropping, it has been thought that a northern exposure would be best. That the more equalized dampness the soil held would equalize the ripening of the fruit also.

All low, damp, marshy ground and places holding water, though uplands, are well known to be unsuitable locations. We have long

since come to the conclusion that none can definitely fix the proper site where an orchard should be planted in any given locality until all the surroundings are studied. In our horticultural literature we have so many rules given and examples set forth that by study only can we arrive at a successful conclusion.

In open lands, or prairies where strong winds prevail during the growing season from certain directions, it would be advisable to plant on slopes, receding from the direction whence the wind comes; the brow in this case would be a wind break, as it would rise and blow over when coming in contact with the earth.

From every source we are constantly reminded of the importance of wind breaks, shelter belts, and those whose good fortune it is to possess natural protection in some form or other are most happily situated.

Of orchards on prairie lands, an extract from a paper that appeared in the *Journal of Horticulture* will be found full of useful hints and interesting points of study.

“Scattered over our prairies, are found groves of timber generally on higher ground than the surrounding country, and on that account are less subject to frosts than the lower grounds. The soil also is different, being much poorer. The original growth cut away, leaves a mass of decaying roots in the ground which serve for a number of years as underdrain. These reasons make these timber spots most eminently suitable for orchards. The poorer quality of soil is favorable in that the wood is not stimulated to make a late fall growth, and is thus well ripened and prepared to endure the rigors of a severe winter.

“If no other alternative is presented but to plant on low prairie, or not at all, prepare the ground by throwing up into ridges for the tree rows. Then protect your trees by belts of evergreens. This protection being one reason of success in the timbered portions, since the forest trees left standing serve to protect the orchard from the force of the winds.

“Southern exposures are more readily affected by the rays of the sun, causing the blossoms to open earlier, and thus suffer more from spring frosts.

“When blossom buds are frozen, those in the southern and eastern exposures are thawed suddenly and killed, while those on the north side of the hills thaw more gradually, and remain uninjured. The slower warming of the atmosphere forms into a kind of dew or vapor,

that aids to extract the frost, very much like plunging frozen plants in cold water.

“The frequent thawing of the bark of the trees during later winter and early spring, causing in many cases sun scald and bursting of bark, caused also by the sudden action of the warming rays of the sun, make in these respects, grounds lying to the south or west of south the worst locations, and north the best.”

In the peach districts of Delaware, Maryland and New Jersey, when a peach orchard has become old and useless it is claimed that it requires at least twenty years with changes of crops before the soil has fully recovered and become adapted again for replanting. From these facts we may judge how our fruit trees are constantly exhausting the soil, and how liberal we must be in supplying what we are annually hauling away. The trees, then, of our old “orchards” that still have life enough, and give promise of years of usefulness, must receive our attention to bring them back to this condition. Therefore, clear out their decaying limbs, trim off the superfluous branches, rub the mosses down from their shaggy trunks, turn over the soil deep and well, let the manures we must add be of the best ingredients, and then our faithful old friends will be in a state, able again as of old, to repay us for our care.

When the trees are of inferior kinds, or so far decayed that it would be best to remove them, and the planting on the same ground not an object, it would be best to clear them away; use the ground for other crops a series of years, and plant young trees on original soils.

Where it is desirable to keep the old plantation and fill the vacant places with other trees, let the holes be large and deep and in a great measure be refilled with new soil and that dug out thrown aside. Good cultivation following the results will be satisfactory. The intermingling of long with shorter lived varieties will be found in orchards planted in past years more so than the present; the object of the present age being to get “quickest returns for every commodity.”

We can only say in conclusion, spare some of the old trees, still let their swaying branches be a landmark of the past, but plant in other fields, plant newer kinds, keep on with experiments and let not the good work flag, but be a task for the love in it as well as the profit.

THE MOST DESIRABLE APPLES.

BY P. M. KIELY, OF ST. LOUIS.

Presumming it would interest the members of the Missouri State Horticultural Society to know what varieties of apples were most sought for during 1886, I have made a few notes during the selling season to enable me to present the facts as concisely as possible.

The Early Harvest, the first apple of the season, finds little favor with the public and has nothing to recommend it except earliness, and it is generally neglected if other varieties are in sight. Occasionally, however, it is alone in the market and then finds its way into the hands of the consumer. I pass over the other varieties until the advent of the Early June or Red June, which is a prime favorite with the general trade. The local and order trade take hold of it freely and its showy appearance on the fruit stands attracts purchasers.

After this there is really no variety which receives much notice until the arrival of the Maiden's Blush, which I find in most of the catalogues among the fall varieties, but in this market a regular summer apple and its season is about over when the regular fall apples appear.

The Maiden's Blush is purchased by all class of buyers. The shippers like it, and many of them do little in the way of shipping before it is offered. Its handsome appearance, as in the case of Red June, being the great attraction, and during the month of its existence in the market here, has a better sale than any other variety. At this time several varieties of sweet apples appear, but all the sweet sorts have a very limited sale. The shipping, or order trade—the very best we have—will not touch them at any price, they being too perishable for their purposes. The local demand for them is exceedingly small and hence I urge the cultivation of but few of them, as the market is easily glutted.

The Rambo, which soon follows, about the first of the fall varieties, is recognized by everybody, and has a big local demand, although the shippers touch it very lightly, it being short-lived. About this time

also appears the Yellow Bellflower, which in this market has, for so many years, sold higher than any other variety during its season, while it lasted. The supply of the Yellow Bellflower the present season has been the smallest known in the experience of the writer, a fact which enabled the Jonathan, an apple of great merit, to take a decided step to the front. Indeed the Jonathan was almost unknown to the general purchaser until this season, when it became all the rage, selling as it did, when the market was glutted, at \$2 per barrel when fine Ben Davis were offered side by side at \$1.40 per barrel. However, this is no reflection on the Ben Davis, since any other variety would have suffered by comparison during its season in the market. For a month or six weeks the local demand would take but little else, and were willing to pay the difference and the shippers, too, were liberal patrons. The grower who has a crop of Jonathans next season is sure of fine prices regardless of the general supply or condition of our market, a fact that should stimulate growers to raise more of them. It is, I think, the finest eating apple before the public. That excellent variety, the Rome Beauty, which always figures conspicuously in the apple market from September, did not even have a ghost of a show with the Jonathans. The supply of the Rome Beauty was unusually light this year, a fact regretted by most of the dealers, and its absence at this time leaves a void in the market not easily filled.

The Willow Twig and Newtown Pippin are purchased freely during November for storing purposes; the latter, however, is not as desirable as the former variety, lacking in size especially.

The Ben Davis, which comes here so freely during October and November, notwithstanding the great crop thrown in the market this season, stands undisturbed, the great apple for commercial purposes. For a while nearly half the entire receipts were Ben Davis, especially during October. No variety was ever before put to such a test. How could it head the list of high priced apples? No other variety grown would bring the same price if shipped in such quantities or comprised such a large portion of the receipts. We can readily see the Ben Davis could not be replaced. Give it a better show in the struggle for existence by planting a few more Rome Beauties, Winesaps, Willow Twigs and Huntsman's Favorite. The latter variety has caught the public eye and commanded fancy prices, appearing about the first of November and now (Dec. 6th) nearly gone.

I had almost forgot to mention the Domine, which appeared here in large quantities this fall. The price paid for it averaged lower than, perhaps, was offered for any other variety. It has nothing in particu-

lar to recommend it, and is hardly worthy of a place in the orchard, unless you plant a few trees for the sake of variety. The Winesap does not lose its hold on the public and commands at this time good prices and will continue to do so till spring. There is a growing scarcity of the Russets. They sell at good figures every spring, also during the winter, but most of those offered are grown in the east.

For the apple growers in the territory tributary to this market here is my list, running from early to late: Red June, Maiden's Blush, Rambo, Bellflower, Jonathan, Ben Davis, Rome Beauty, Winesap, Willow Twig, Huntsman's Favorite and Janeton. The list might embrace Northern Spy, Smith's Cider, Pa. Red Streak, or be enlarged according to circumstances. I base my claim for these varieties on the public taste or demand. Were I to use my individual taste, or that of many experienced cultivators, I might alter the list somewhat, but as you are growing fruit for profit, you must furnish that which the public demands or pays the most money for.

Motion that the society receive the delegates from the sister State societies.

Mr. E. H. Reihl, of Alton, Ill., delegate from the Illinois State Society; Mr. F. W. Taylor, of Creston, Iowa, delegate from the Iowa State Society, and Mr. ——— Scott, of Doniphan county, Kas., were introduced to the society and invited to make themselves at home and take part in the discussions.

Mr. Burrows—I will open the disension by referring to the first paper read. After twenty-eight years' experience I think that was the best paper that ever was written on the subject. I think if the teachings of that paper were fully made known to all planters of trees it would do immense good, but all planters do not receive a copy of our report. I emphasize the importance of cultivating and fertilizing orchards. We plant our trees and fast neglect them. We don't consider the great tax on the soil the trees cause by growth and the maturing its crop. It is very great. We refer to the Ben Davis being short-lived. It is the greatest bearer we have. Hence, it soon wears itself out. I feel a particular interest in orcharding—apple growing. We cannot pay too much attention to it. Something was said about judicious pruning. I will say briefly the best pruning is no pruning at all.

Dr. Goslin—This society should be careful to send out only good teachings. I was damaged by following some teaching I heard at Carthage in regard to no pruning by Col. Haseltine. I went home and said I would not prune any as that would be easier, and if no pruning was better than pruning, it would be very easy to do the better way. I reaped my reward. I have learned that an apple tree must be cultivated. I have experience, and know what I am talking, and I know an apple tree requires cultivation just as much as a hill of corn requires cultivation. The growing of apples is becoming a profession. The early settlers grew good apples without cultivation, but we cannot do that now. My apples were small, and the men who bought them asked me why I did not go to another horticultural society and make them still smaller. I knew a German to whom I once sold apples who preferred small apples, as they would go farther. If we can raise first-class apples we need not fear about selling them. Buyers will come. To have such apples we must prune carefully. Taking a tree when it is first planted it requires careful training, just as a boy requires training. Continue it from year to year, and you will never have to prune heavily. This year our trees have over-borne, and the constitution of the trees are somewhat impaired by the long, dry, hot summer. You can't expect to have many apples next year, unless you nurse your trees carefully. The teaching of the papers this morning is good.

President—This gentlemen must not hold this society responsible for the teaching of Col. Haseltine, as it did not indorse his teaching.

Mr. Murry—I confess I was wrong in advocating no pruning some years. A gentleman just across the Missouri river planted trees from the same nursery as mine. His theory was no pruning. His trees produced some immense crops for a few years, but they have now become so small that the same buyer paid ten to fifteen cents more per bushel for our apples than for his. I would not have gathered the entire crop of the orchard of which I speak as a gift. It is just a mass of tangled brush. It is done for. The land is much richer than that where our orchard is. With the let-alone system you may get two or three good crops, after which you will not have to cull them much. They will be all culls. I am satisfied that careful cultivation will double the value of a crop of apples, especially in a dry season.

Mr. Maitland—I think the distance apart trees are planted is a very important factor. Those planted farthest apart live longer and bear more regularly. I think forty or fifty feet none too much. I gathered sixty-four bushels of apples from one Janet tree, about thirty-five or forty years old, standing far away from other trees. Most of

the trees in the same orchard are dead. It has been pruned to death, all the water sprouts being kept cut off. I think water sprouts are the result of effort on the part of the tree to form a new top and keep itself alive. If this is true, some of the best water sprouts should be left on old trees.

Mr. Scott of Kansas—The orchard in Kansas, of which Mr. Murry spoke, was planted only sixteen feet. Too close planting is one cause of its failure. I think clover does an orchard no harm. A hill of corn will grow well in a bunch of clover. So in a meadow, if you sow half timothy and half clover you will have more timothy than if you sow timothy alone. I would plow under the clover occasionally and hog it a little.

Mr. Teubner—Here are some apples from a twelve year old orchard; you see how they are spotted. The orchard is now in grass and seems to be on the decline. I venture that if it is left alone three or four years longer the trees will fail very rapidly.

Mr. Taylor of Iowa—The apple crop is a failure in my part of the State of Iowa, the southwest part. In the eastern part the old orchards are nearly all dead. We have had trying times on orchards for four or five years. In western Iowa the trees are in bad shape.

Mr. Follet—We find references in the books as to growing sweet apples for stock. Would it not be profitable to grow them to prevent hog cholera? Is a sweet apple less likely to be worm eaten than a sour one? Are they not better for cider? They are very wholesome baked. Would it not be profitable to grow them extensively?

Mr. Nielson—You all agree that it is better to cultivate an orchard. Why is it better? It is all very well to say that such and such a thing is better, but we want to know the reason. The principle of the thing is what we wish to know. Does not cultivation let in the air, the sunlight and save the moisture in the ground?

Mr. Burrows—In five years' experience in allowing hogs to run in the orchard we have not lost a hog, even when they were dying on the adjoining farm.

Mr. Murry—I confirm the gentleman's experience. Before I had fruit I lost hogs from cholera. My county has lost thousands of hogs. They benefit the orchard by eating the wormy fruit, and the fruit keeps the hogs healthy. Two bushels of sweet apples are said to equal one bushel of corn in fattening hogs. Thousands of trees have been planted in the east, but I do not know what has been the financial result.

Mr. Meniffee—My hogs run in the orchard, and for five years I have regularly *not* escaped the cholera.

Mr. Speer—The doctors seem to disagree on this matter as well as on anything else. I have had no cholera for five years with my hogs in the orchard.

In reply to a question as to what the Agricultural College was doing with the experimental orchard, Mr. Taft said in regard to pears that the Japanese varieties were hardy and fruitful. The Keifer was fruitful and good for preserves. The LeConte had borne a few small pears, but not enough to test its value. They have thirty or forty varieties of plums, but none of them are of value except those of the Wild Goose class. Sweet cherries do no good.

The young orchard has not been cultivated for two years. The trees are making a fair growth. The trees have been pruned.

Society adjourned until 2 P. M.

WEDNESDAY 2 P. M.

It was moved and adopted that each member be requested to make a list of the twelve best varieties of apples, all things considered, to annex his name and address, and hand the list to the secretary for publication.

FOLLOWING ARE THE LISTS:

Apples.—Early Harvest, Red June, Benoni, Maiden Blush, Rambo, Baileys Sweet, Golden Sweet, Tulpahocking, G. G. Pippin, Jonathan, Winesap and Ben Davis.

Cherry.—Early Richmond.

Pears.—Bartlet, Duchess, Seckel and Keifer for canning.

Strawberries.—Crescent, Downing and Glendale.

Raspberries, Black Cap.—Hopkins.

Raspberries, Red.—Cuthbert, Turner and Shaffer.

Blackberries.—Snyder and Freed.

M. BUTTERFIELD, Lees Summit, Mo.

Apples.—Ben Davis, Winesap, Janet, Huntsman, Newtown Pippin, Stark, Willow Twig, Jonathan, Rambo, Duchess of Oldenburg, Red Astrachan and Early Harvest.

Pears.—Bartlett, Seekel, Duchess, and Clapps Favorite.

Strawberries.—Crystal City, Crescent and Charles Downing.

Raspberries, Black.—Tyler, Mammoth Cluster and Gregg.

Raspberries, Red.—Turner, Thwack and Cathbert.

Blackberries.—Snyder, Wachussett and Kittatinny.

Peaches.—Amsden, Missouri Beauty, Foster, Lemon Cling, Heath and Steadly.

G. F. MAITLAND, Lexington, Mo.

Apples.—Early Harvest, Red June, Maiden Blush, Buckingham, Grimes Golden, Jonathan, Rome Beauty, Huntsman, Winesap, Ben Davis, Janet and Willow Twig.

J. T. STEWART, Blackburn, Mo.

List of apples recommended for Montgomery county, by F. Lionberger, New Florence, for home use and shipping. For the planting of 1,000 trees I should recommend the following selection:

Apples.—Early Harvest, Red June, Maiden Blush, Lucy Pew, Pa. Red Streak, Grimes, Jonathan, Janeton, Huntsman, Ben Davis, Winesap and Rome Beauty.

For a good local market I should plant more of the earlier sorts, indicated in the above list.

F. LIONBERGER.

Apples.—Kentucky June, Red June, Kirkbridge, Maiden Blush, Wealthy, Colvert, Rambo, Grimes Golden, Rome Beauty, Jonathan, Ben Davis, Janeton and Clayton.

J. H. MONSEES, Beaman, Mo.

Apples.—Early Harvest, Sops of Wine, Oldenburg, Lowell, Maiden Blush, Jonathan, Mother, Smith's Cider, Winesap, Willow Twig, Ben Davis and Janeton.

HENRY SPEER, Butler, Bates Co.

Apples.—Early Harvest, Maiden Blush, Lowell, Mother, Penn. Red Streak, Grimes Golden, Jonathan, Ben Davis, Gano, Winesap, Willow Twig, York Imperial.

Pears.—Seckel, Sheldon and White Doyenne.

W. G. Gano, Parkville, Mo.

Apples.—Early Harvest, Maiden Blush, Early Pennock, Rambo, Jonathan, Belleflower, Pryor's Red, Ben Davis, Winesap, Willow Twig, W. W. Pearmain and Rawles Janet.

Pears.—Bartlett, Duchess, Clairgean and White Doyenne.

J. A. Durkes,

Weston, Mo.

Apples.—Red June, Duchess, Maiden Blush, Mother, Jonathan, Grimes, Rome Beauty, Smith's Cider, Winesap, Ben Davis, Willow Twig and Ladies Sweet.

Pears.—Duchess, B. Clarigeau and Lawrence.

L. A. GOODMAN.

Apples.—Early Harvest, Red June, Maiden Blush, Rambo, Jonathan, Rome Beauty, Huntsman, Ben Davis, Willow Twig, Janeton, Winesap and Small Romanite.

CHAS. TEUBNER,

Lafayette county.

Apples.—Early Harvest, Craghead, Maiden Blush, Rambo, Winesap, Rome Beauty, Jonathan, Willow, Huntsman, Ben Davis, Gilpin and Limber Twig.

R. E. BAILEY,

Fulton, Mo.

GRAPE CULTURE.

ADDRESS BY JACOB ROMMEL, OF MORRISON, MO.

Grape culture has, for the past few years, been all but encouraging. Extreme cold winters and wet seasons have caused crops to be very light.

The rot in grapes has been most fatal and has been on the increase from year to year. Concord, in many places, for last years almost a

failure by rot, while Nortons or Cynthiana. Ives and Elvira have done best, being the least affected by rot, and produced fair crops, however not entirely exempt from rot.

The rot is most prevalent in the older vineyards, as the poisonous matter that causes the rot is increasing with age of the vineyard. This has been proven, as young vineyards at all times are least affected by rot. The vines appear to undergo changes at certain ages. For instance, the Concord and many of the old kind, where first introduced, have for years proved almost exempt from rot, likewise many of our newer kinds. All appear to share the same fate in time, with the exception that some will resist it longer than others.

There have been many remedies for preventing rot, but none has proved a success. Many experiments have been made to prevent rot, but so far all have failed except to cover the vines over head or to run them under an eave; this however, is too expensive.

Paper bagging the grapes in their early stages is at present much practiced and considered the cheapest preventive we know of. It is however attended with much labor, and may only be profitably employed on the finer varieties. A cheaper rot preventive is anxiously looked for, and the man who will discover such a preventive of pear blight may be called a great benefactor to fruit growers, as I consider the grape and pear the finest fruits we grow. It is hoped that we may all soon be blessed with such a discovery and be able to hail such a benefactor. Then we might succeed in growing the most delicious fruits of our soil—the grape and the pear.

Let all, therefore, strive with zeal and patience to discover such a remedy and become this immortal benefactor. Until such a remedy is discovered, our policy must be to plant new vineyards from time to time in new places, and selecting the best new varieties, and to continue to raise new seedlings to take the place of older sorts that may fail.

These hints apply more particularly to the older districts, but if heeded by the younger, many of the evils attending the older may be averted.

The following letter was read :

BUSHBERG, JEFFERSON COUNTY, MO., Dec. 6, 1886.

MY DEAR MR. GOODMAN—Unforeseen circumstances almost at the last moment, prevent my attending your meeting to-morrow, at which I had confidently hoped and expected to be present. While I regret it sincerely that I must be deprived of this pleasure, I may, at least, express the hope that your meeting will be a very pleasant and profitable one, and will be greatly enjoyed by all who are present.

I must also offer you my apology that I have not prepared a report on vineyards, as you will have expected from me. The fact is, however, that there has been so little of encouraging and cheering result in the grape crop of this section, owing to the very unfavorable season which we had here, that I have had no heart to make a report, and I intended to ask the society rather to excuse me for this time.

I hope that under the circumstances my failure to make such a report, which in itself could have reported but little else besides failure of crops, may meet with a kind and charitable indulgence for

Yours very truly,

G. E. MEISSNER.

Mr. Teubner—I have no material of which to make a written report. The few vineyards we have are mostly Concord. It has rotted badly this year, but not as bad as last year. We have had, perhaps, half a crop. In some vineyards three-fourths of a crop. Sacking, in a small way, was successful in preventing the rot, and also in keeping the berries from being wormy.

Mr. Ambrose—At what time should the sacks be applied to prevent rot? Many have failed with the system, perhaps from the fact that they did not sack the grapes at the right time.

Mr. Teubner—That is an important question. I think the sacks should be put on as soon as possible after the berries are set—say within four or five days after they are set.

Dr. Gordon—I had bunches affected on the 10th of June, before the berries were as large as goose shot. I am satisfied that any family can sack enough grapes for their own use.

Mr. Irvine—The matter was up at the Warrensburg meeting. I believe it was said there that the disease was caused by the exhaustion of some necessary element in the soil. One gentleman laughed at the idea. I know of a gentleman who had a large vineyard in good soil.

He had good grapes at first, then they began to decline, with the exception of twenty-one vines upon an old chip pile. These continued to bear grapes free from rot.

Mr. Teubner—I know of a somewhat similar instance. A man not far from me has some Clinton vines upon the side of a house, and also some in a vineyard near by. Those upon the house never rot, even in a wet season, while those in the vineyard do rot. The vines upon the house are probably larger.

Mr. Patterson—Our best grapes grow upon low ground, tile drained. There was very little rot in north Missouri this year. We have scarcely any other than Concord vines.

REPORT OF COMMITTEE ON SMALL FRUITS.

BY SAMUEL MILLER, BLUFFTON, MO.

★ **FRIEND GOODMAN:** As it falls to me to furnish a paper on the above subject, it will be prepared, whether I will be there to read it or not.

Strawberries—Of these we had quite a variety, in a mass, not giving them much attention the season before. The varieties that gave us the best returns were Crescent, Captain Jack, Vick, Cumberland, Cornelia and Glendale. Of these we now have half an acre in as good condition as such a dry summer would allow. These with Crawford's No. 6 are all that are retained. This latter is about the largest strawberry I have grown, moderately productive and good. The Cornelia is with us a splendid berry in all respects.

For several years in picking this fruit I have often observed that where some animal had crossed the patch when the ground was soft (a thing that will occasionally happen) that on the edge of this hole or impression the finest berries were usually found. Whether this is because this hole gets more water in it than the rest of the ground or

what, I don't pretend to say, but such has been the case. The idea has suggested itself to me that perhaps if we had the ground where the row is a little elevated, and the furrow between deeply mulched whether it would not be well. Another matter I observed, that around a place where my dog dug after a mouse in the fall, and to all appearances had demoralized a square yard or two, when leveled off in the spring the plants looked well, and they were the finest berries also.

One thing is certain, that if the crown of a strawberry plant is a little too deep it will be smothered, and little or no fruit will be produced, and if the crowns are too high and a severe winter follows, unless very well mulched, the result will not be satisfactory. One time I trenched the ground eighteen inches deep, manured freely, planted a specimen bed of some dozen varieties. Kept all the runners off during the summer, except the Windsor Chief, which I had but a dozen plants, which were left to run.

The following spring the plants all looked grand, and a big crop was looked for. With one exception, the thing was as near a failure as I ever saw.

There were twelve plants of each and none gave fruit worth looking at except the Capt. Jack and Cumberland, and even these had not a fourth of a crop. Crescent was not among them as it was not in my collection then.

The exception alluded to was the Windsor Chief, which produced the biggest crop of big berries I ever saw. A friend who measured the space the plants covered, and measured the fruit carefully, taken into calculation, showed that it was at the rate of 14,000 quarts to the acre.

It will be a long time before we can tell exactly how to treat the different varieties to the best advantage.

Raspberries were a fine crop. Hopkins pleased me well. Marlboro disappointed me, but may do better next season.

There are two ways of doing most things, a right and a wrong one, but I do not know a fruit that will vary more than this according to treatment.

Take the same variety of Black Cap, plant one lot in good soil, keep clean, and pinch the young canes at the proper time, two or three feet high is the proper time, trim properly in the spring, mulch and keep clean and you will see fruit that will gladden the eyes of even a connoisseur. Plant the other in poor soil, omit pinching, let the weeds take a share in the operation, and the crop of fruit will not be worth picking.

The latter is the treatment they usually get from the common farmer, and then they say they don't do well.

For the suckering varieties, let but three or four canes grow in good soil, pinch at three feet, keep clean as above stated and the fruit will be fine. While if left to sucker all over the ground and the weeds left to grow, the fruit will be small and inferior. It is so with nearly all fruits.

Blackberries, we have but three varieties in fruit here, Snyder, Western Triumph and Taylor; the latter bore some excellent berries the past season, but were too small to suit me. This may, however, have been caused to some extent by the mass of suckers that spring up, which we want for future planting.

Snyder and Triumph are good ones and don't fail to bear good crops. The latter suffered somewhat one winter. Kittatinny and Lawton are winter killed too often here in our rich soil. Cherries were a failure. Gossberries, as usual, a splendid crop. The Orange and Rocky Mountain or Oregon promise well. These with Downing and Houghton are all we have.

Currents were fine. Red Dutch and White Grape. These and Fays Prolific are all we have, the latter has not born fruit yet.

Grapes were a full crop at the start, but the rot levied a heavy contribution on them, and what ripened were nearly all claimed by the birds, bees, wasps, hornets and yellow jackets. I never saw such an onslaught as they made for a few days. About all we got were those put in paper sacks.

The Niagara, Empire State and Woodruff's Red have made a fine growth, and may show us fruit next year.

Of one thing I am convinced, that is, that to lay down the half hardy vines in the fall and cover lightly, and as soon as the fruit is well set put paper sacks on the bunches, we can raise some of the finer kinds that will almost invariably fail with ordinary culture. The past season I grew the first bunch of Black Hamburg out doors. The vine grew well and is down and covered now for next season.

As to the profit, the growing small fruits depends on situations. As I am, there is no profit in it, but as the boy said, what fun! But a few hours ago I finished dinner with a dish of strawberries and cream that was easy to take.

If farmers would raise and eat more fruit and less meat there would be fewer doctor bills to pay and much sickness avoided.

I eat less meat in a week than many a man consumes in a day, yet

can do as much work, and that pretty hard work, as any man of my weight and years that I am acquainted with. But this is like everything else, must have an end. With my best wishes for a pleasant and successful meeting at Lexington, whether I be with you or not, I am with you in sentiment.

SAMUEL MILLER.

BLUFFTON, Mo., November 28, 1886.

A TREE WASH.

EDITOR RURAL WORLD: For nearly twenty years I experimented how to save my fruit trees from being killed by insects, and have long used the following as the best. Take one peck of unslacked lime, four pounds of the flower of sulphur, mix and slack with about eight of boiling water. Whilst yet hot, add one-half gallon crude carbolic acid, and the same of gas tar, stirr well and mix thoroughly. When cold it is ready for use. A flat brush I find to be the best. For mice, rabbits or sheep put on the wash high enough to cover the trunk out of their reach.

For a spring wash against borers, leave the gas tar out and add in its place one gallon of soft soap. Wash thoroughly so as to reach every crevice or hiding place when the trees are in bloom, or not later than three weeks after they reach that state. The millers or bugs will not lay their eggs on that wash, but if they do it will surely kill them. But on neglected trees, where the borers have gotten under the bark, nothing will do but the knife and to surely cut them out. This wash will not only protect the trees from insects but give them a smooth, healthy bark. One person can wash from 100 to 800 trees a day, according to their size and height of washing. I have 400 trees, apple, pear, peach plum, etc., and this wash proves successful against rabbits and borers, which are very numerous in this locality. I have seen sumac and other bushes close to my trees gnawed by rabbits whilst the trees were unharmed.

Lime in a wash makes a body, and is not only a protection against the insects, but also against the weather. Sulphur is poison to insect

life. Carbolic acid is a deadly poison to insects, and retains its strength for a long time. Gar tar will make the wash stick well, till spring rains wash it off, but it or anything of a greasy nature should not be used on trees in summer.

JACOB FAITH, Montevallo.

REPORT BY W. M. HOPKINS, SPRINGFIELD, MO.

To the Missouri State Horticultural Society:

As one of the committee on small fruits I submit this brief report. As a new comer here it must not be expected that I am sufficiently posted to do the subject full justice or add anything new. I learn from growers of small fruits in this vicinity that the strawberry crop was about an average, but a two weeks drought caused the fruit to ripen up all at once, causing too many small berries and a glut in the market and very low prices. One large grower became disgusted and let much of his crop go to waste. Red and black raspberries only a fair crop with very good prices. Blackberries a very small crop on account of the rust (as usual all over the west) with good paying prices. One grower near Springfield has had the same plants on his place nearly twenty years and no rust yet. I saw the Red Dutch Currant growing here under treatment that surprised me, and loaded down with that beautiful fruit. I think with the right kind of treatment and proper care it will be a paying success. I think from what I can see that southwest Missouri is well adapted to the raising of all the small fruits. Let me again urge all engaging in the business to plant no more than you can cultivate well, and handle the fruit better than is generally done. I know from fifteen year's experience that it does pay to handle fruit well. As far as I see and can learn, all small fruits that have been properly attended to since fruiting are looking very well. The strawberry crop will not be so large the coming season as last, many patches have gone to waste and not many set last spring. It might not be out of the way to add that I consider winter protection indispensable to success in raising strawberries. Cover with clean wheat straw from one to two inches as soon as the ground freezes hard; as soon as spring opens rake the straw lightly from over the plants and let it stay between the rows for a mulch and to keep the fruit clean till the fruiting season is over.

SPRINGFIELD, Mo., Dec, 1, 1886.

The members were requested to name three best kinds of strawberries.

Mr. Robards—Crescent, Sharpless and Cumberland.

Dr. Goslin—Crescent, Sharpless and Miners Prolific.

Mr. Maitland—Crescent, Crystal City and Chas. Downing.

Mr. Lionberger—Cumberland, Capt. Jack and Crystal City. I have not had much experience with the Crescent. I know a patch that died last summer during the dry weather.

Prof. Tracy—I would have Crescent, Cumberland and Jersey Queen. The last with hill culture is very fine.

Mr. Murry—The Crescent stands drouth well. My berries were large and fine.

Mr. Irvine—The soil might have something to do with it. Mr. Murry lives in a country where the roots go down thirty or forty feet.

Mr. Teubner—Wilson and Capt. Jack will do well on rich soil. Jas. Vick and Glendale will succeed upon poor soil.

Mr. Meniffee—In my deep, black sandy loam the Crescent, Miner and Glendale are the best, or Mount Vernon instead of the latter, both being late. The Sharpless is very liable to be destroyed by late frosts. It can't stand frost at all. The Crystal City is too shy a bearer; it is not profitable. Miner is the most productive of all, but a poor ripener, one side being green when the other is ripe. Cumberland is not quite so productive.

Mr. Lionberger—The Crescents of which I spoke are on very rich ground. Plants from the same bed stood the weather fine on my ground. The Crystal City is too shy. The Daisy Miller is not a daisy. Piper we like, but it is too dark in color and not firm enough to ship.

Mrs. Goslin.—I grow the Crescent, Sharpless and Chas. Downing. The Crescent is rather too small after the first week, but the Sharpless is then fine and I always have the boys put the large berries on top of the boxes, and the small ones in the bottom. The buyers want them to look nice. (Laughter).

Mr. Patterson.—The Crescent is the best we have on our hardpan soil. The Cumberland with good soil, good cultivation and good treatment generally, is a good home market berry.

Mr. Murry.—I think there is danger of us drifting too much to the strawberry. I find there is a growing demand for the black raspberry and the blackberry. We can not stock the market with blackberries. The very finest strawberries sold as low as seventy-five cents per case in St. Joe, while blackberries never sold nearly as low. Plant the Snyder on the very richest land and you will have a good-sized berry. The Snyder gives good satisfaction where people have tried it.

Mr. Teubner.—I agree with Mr. Murry. I find even many farmers are planting blackberries, as even the wild plants will winter-kill.

Mr. Durkes.—In a conversation with a gentleman who ships vast quantities of fruit to the northwest, he said that if we could furnish such a supply that he could ship by the car-load, it would create such a demand that there would be no danger of an over supply. He liked the Snyder best.

Mr. Speer.—I would like to know how to overcome the rust. This season we had one picking of very fine fruit, one of indifferent fruit, and then the rust wiped out the whole thing. The Snyder was just as bad as the Lawton.

Mr. Maitland.—I planted the Kittatinny on both rich and poor soil. Those on the poor soil rusted badly while those on the rich soil had no rust.

Dr. Gordon.—The Kittatinny did not rust on rich soil with me.

Mr. President.—I will say that I know of a great many patches of blackberries, and of but one that did not rust. It was in a rich clover sod, grazed a part of the time by horses; and the horses are very careful not to tramp the bushes down.

Mr. Speer.—What does Mr. Holman think of the president's plan of raising blackberries by horse power?

Mr. Ragan.—I had for eighteen years a plantation of Kittatinny and Lawton which never rusted, though they would sometimes winter-kill.

Mr. Robards.—I would like to suggest that Shaffers Colossal is the largest, most productive, hardy berry we have. Its flavor is good. I regard it as superior to Cuthbert and Turner.

Mr. Durkes.—I indorse all that has been said in its favor.

Mr. Patterson.—It is a large cropper. The berries are good for canning, and some like them to eat.

Mr. Bailey.—I find a demand for it in preference to the Turner after I have induced people to try it. Fifty plants two years planted made more berries than five hundred Turners.

Mr. Meniffee.—I have fruited it for a number of years and consider it one of the best.

Mr. Teubner.—I like it except its color.

Mr. Speer.—I like it better than all others combined. I would let all others go and keep Shaffers. It don't sprout.

Mr. Lionberger.—I indorse what good has been said of the Shaffer.

Mr. Goodman.—In reply to the question which is the best Black Cap. We want the Hopkins, it is the only one good for anything in our country.

Mr. Holman.—I have a seedling, somewhat like Gregg, almost as large, hardy as any. It will follow the Hopkins and with that variety will be all we want. The Gregg is not hardy enough. We call the new kind the *Ozark*. It is a very strong grower. We have another hardy berry that we call the *Bronze Queen*, on account of its peculiar color. It is a strong grower. The canes are immense. It does not sucker but roots firm the tips. It is like the black cap in growth of wood, fruit quite sweet and very good, fruits well and is hardy.

Mr. Taft.—I have been growing about fifty varieties of strawberries, fifteen of raspberries. Of the older kinds of strawberries I like Crescent, Cumberland and Capt. Jack. Among the new kinds Jewel, Belmont and Prince, promise well. The Belmont had just a few berries, fair in quality. Jewel is a very strong grower, large, handsome of fair quality, but does not make many new plants.

Parry—Weak, I saved only four plants out of twelve, berry soft, not good.

Henderson—A strong grower, fairly productive, of excellent quality.

Prince—Strong, vigorous and promises to be very valuable.

May King—Early, much like Crescent.

Among the red raspberries Turner is our stand-by.

Marlboro is not productive.

Shaffer's Colossal—Extremely productive, the best.

Souhegan—Early, productive, rather sour.

Nemaha—Promising.

Carmen—Promising well.

Among blackberries the Early Cluster is hardy, so is the Agawam.

TRANSPORTATION.

BY CLARKE IRVINE, OREGON.

There is a fact that we habitually ignore, although it is pressed on our attention by experience. It is that the desire of the human race to

consume is insatiable and keeps pace with its ability to procure. It is useless to refer to the almost numberless instances to prove it. The post office, the cheap newspaper are sufficient to name. It is true also that revenue accrues to the producer and furnisher more and more as his price is reduced and consumption increases, provided, always he receives something over and above cost. And yet legislators and business men often disregard this law of trade. The first proposition to reduce postage to a penny per ounce was received with roars of laughter. When the street cars were started at half hour trips and 25 cents per trip, he was deemed a lunatic who suggested a car per minute, at two cents per trip. Two cents for a newspaper was a price looked on as a fraud on creditors.

It is remarkable that all those who get a monopoly or patent on any supply or means of supply grow entirely oblivious of this law. The thing they desire is scarcity—the smallest possible use at the highest price. If A can make as much money by the use of a thousand dollars, he is not going to use twelve hundred on the slightest risk. He prefers to receive his income from one hundred customers rather than from two hundred. Where the source of supply is not monopolized but the market is controlled the case may be different. The street cars have always a competitor in the customer who can always serve himself; hence, although the routes are monopolized, the system has developed as if under wholesome competition.

Forty years ago the whole transportation of the country was over public ways, such as roads, rivers and canals. You used your own vehicles or vessels, or hired your neighbors'. Life at home was more intensified, and a journey of one hundred miles was a great undertaking. The raw material was largely consumed at home, as distant shipment was expensive. Wheat was ground at home and the flour sent to New York by wagon and canal boat—now the wheat is sent to New York and the flour is shipped back. The country roads were scenes of remarkable activity; droves of cattle, hogs, turkeys, horses and sheep; convoys of monstrous wagons with from four to ten teams to each, travellers on horse or afoot, now a private carriage came lumbering on and then the U. S. mail in a splendid coach drawn by six horses thundered by, often followed by half a dozen. Familiar as the scene was to the village, no one ever lived in one but felt, when stage time came, a hushed expectancy in the air. At every five miles was the half way house with its stable and bar; at every ten or twelve the station with its immense barns bursting with feed, its great stables full of horses, its solid comfortable public house, large dining room and

bar. On all roads leading to important towns and county seats the travel was immense. It was indeed a sight to see as many as twenty six-horse stages following each other all from the same direction, arriving on time: the hostlers rushing out, the grand dignified drivers tossing lines and whip to waiting boys, travellers pouring out to stretch their legs, take a bitters and dinner. Inquiries were naturally made as to the whereabouts of the mail coming from the opposite direction. On some hill or house top were watchers, signals were given, "She is coming"! and perhaps, if travel were brisk, a dozen or twenty stages came rattling in, the horns of the guards playing in a lively "toot tooing" as they thundered on. Dear delightful sounds still lingering in memory's ear. This is no exaggeration. And at some great mail centre where some half dozen roads crossed, leading to county seats in every direction, it was a wonderful and a glorious spectacle. Just think of as many as fifty stages within a little time passing one point in all directions—every five miles a half way hotel—every ten a regular station on the many mail routes among this centre. And now all this life has utterly vanished. All that bustle, that crowding, human life and animal life manifested by hundreds of horses, crowds of people, several hotels and barns is now represented by a momentary roar and shriek, the ring of a bell, the rush of half a dozen men to and from a station and all is over in just about three minutes.

I was reminded to write this because of a young man saying in my hearing that he "wondered how people got on in the days before the telegraph and railway, and how lonely the country must have been." Now I have traveled back over the very old stage routes and that old national pike, so crowded with life in the days of 1840. Then you were meeting people constantly and the open doors of noble country taverns invited you in every few miles. Now, "Look out for the locomotive," you will probably not meet a soul all day, and every old public house is closed up. Life has been drawn from the country to the city. Everything is sadly changed. Had anyone taken you, forty years ago, upon some high hill and shown you all the roads and ways of travel in your region, crowded as they were with all the motions of life for business or pleasure, and said "You will live to see the day when these ways will be as much disused as though non-existent. They shall become as dead and buried, and over them shall be erected private ways, upon which none but the owner can carry vehicles, and all you want to have carried and your own journeys shall be by their permission. Another thing will be. Much as you think is carried to-day there will be more carried then; much as we travel now we shall travel longer

journeys then. In fact travel and transportation which are to-day quite an important feature of life, shall in the days to come be the all-absorbing occupation. Travel will be increased, carriage also beyond your powers of conception, and the whole life of society will adjust itself to the new conditions."

You could hardly have believed it possible. And yet it has occurred. And the rapid, prompt transfer of commodities by ways absolutely controlled by companies has directed business, has scattered here and concentrated there, so that its mighty streams and tides are as much under our control as the regiments of an army in action.

But a thing never dreamed of has also occurred. Competition has been as much destroyed and prevented from developing, as though an absolute monopoly of this all absorbing business had been granted to a few persons. Not only have the hundreds of companies made agreements, but they are being absorbed gradually by a few great systems until, in all probability, the great systems shall evolve into one or two.

A very remarkable paper, lately published in England by Mr. Charles Waring, exhibits the same tendency and condition there. Briefly he shows that, some twenty years ago, Sir Henry Tyler in Parliament remarked that "the state must own the roads or the roads will own the state," that several hundred companies originally are now comprehended in four great divisions; that every term of Parliament sees bills passed transferring harbors and quays to the railways; that all other convenient ways of transport are now controlled by the roads; that the House of Lords is composed mostly of railway delegates; that while dollars are charged for carrying freight a short distance, a few cents comparatively are charged for carrying long distances on the same road; that the value of railroad property has doubled in a short time, that railway stock pays seven per cent. while the best of other investments pay but three, and finally, at the present rate, all the land and other property are rapidly gyrating to the railroads. He concludes that it is imperative that this great necessity of modern life, railway transportation, shall be controlled directly by the State, and that freight shall be charged per weight and not per distance, and the cost of travel be so reduced as to be nominal.

When public burdens become too heavy the people revolt. The poorest head of a family in the United States is bound to patronize the railways to some extent. He is obliged to contribute to their support so long as he is a consumer. When a railway official, by authority, puts a fraction of a cent more on the pound of freight, he is virtually taxing his subjects, perhaps, hundreds of millions of dollars. In every

government that has ever existed the power of taxation was the highest attribute of sovereignty, the most obnoxious to abuse, and when abused, the most intolerable and irritating of all burdens. Every great convulsion, under every system of government, has had its rise in some abuse or some necessity in the exercise of this power. And of all the taxes ever derived by the ingenuity of man, that which is laid upon production is the most hateful, the most impoverishing, the most annoying. The charges that are placed upon the surplus products of some five million agriculturalists of these States who are far from market and the sole consumers of whose surplus are in Europe, is the chief cause of the labor troubles in the United States. For what is their surplus? It is that which supplies to them not food, not fuel, not capital to any great extent, but manufactured commodities and means of paying direct taxes.

They with their families and dependants are not less than twenty-five million souls, ordinarily the heaviest consumers of manufactures and largest patrons of the railways [not as passengers but as producers and consumers]. Here you have some twenty-five millions of your best customers driven into an economy fatal to your manufactures.

If, now, we expostulate with the railway magnates, they point us to their reports and show us they are not making money. Still, railway improvement and extension seem to be the most thriving business we have. There are two or three matters I wish to mention in this connection and then leave the question for your reflection and discussion, "for in the multitude of counsels there is wisdom."

Let us then admit that the railroads are not making money. They say so, and we will not be ungentleman like and dispute it. And then let us see if the business cannot be conducted so as to make money and serve the public well at the the same time.

First—Let me state that the Pullman company is a very wealthy concern. It began poor; it paid six times more for its cars than the roads; it hired one conductor for each car, one porter, two brakemen. It paid the roads to haul the cars a sum equal to its proportion of cost of building the roads. It charged passengers from one-third to one-fourth as much for hauling them as did the railroad companies. It rarely had its cars one-half full, but grew to become enormously wealthy very soon—so much so it now compels the roads to haul them and pay for the privilege. It has become a giant. Do you understand it? You paid the railroad company \$20 to carry you from Omaha, say, to Chicago. But the Pullman carried you for \$5, gave some of it to the company and got rich. The railway company did nothing, but it

gave your seat to another and charged him the same. If the Pullman got rich doing the service in a style so much more costly, why did not the railway company make money? Here is a question I never have heard asked yet; it puzzles me exceedingly.

Again, the express companies do a very good business, entirely at the expense of the roads. This matter has been often referred to. These and other ways of tapping the profits tend to make the roads poor. Moreover, they have built one hundred thousand miles and relaid some fifty thousand more, at the unnecessary cost of some \$28 per ton, tariff, at their own instance and request.

Railway gentlemen when replying to expostulations against the restrictive charges on travel, often sneer at the profits from that source and make light of them. I believe the reports make the profits from freight to the roads about three times more than profits from travel. One great element of cost in railroad operation is time. Necessarily freight trains are much slower and they are much more wearing on the roads. I am satisfied that the road magnates are as slow to learn the great truth of political experience—the lower the tariff the higher the revenue, as were senates and parliaments in the past. They seem to detest serving the public on such cheap terms as will invite the masses. Four-fifths of the people (i.e. women and minors) never travel, and none but the rich ever journey by rail for pleasure. “But the people don’t travel when we give rates,” is said. Your rates are heavy exactions. Imagine a poor man with his family, say seven in all, taking a trip of one hundred miles on “rates”—\$21 at least—and how the poor people do love to travel; how they enjoy it!

Why will a railway carry a hog a thousand miles or more for a dollar, load it, take care of it, unload it—all for \$1, and charge a man who waits on himself \$30. I say to the roads that if they will charge the people as freight they will be compelled to double their tracks and increase their cars one hundred for one. Any difference in the extra cost for finer cars is equalized by the profits from greater speed. Were the roads to attempt this, such a revolution in the travel of this country would take place as they had a foretaste of during the great cut-rate war. Roads then, by carrying only a few more freight cars with windows and seats in them, took in from \$15,000 to \$50,000 per day each, for passengers; and yet the companies restricted all local and prevented much through travel by exacting a large sum of the passenger to be returned to him at the end of the route. Enormous as was the travel at these restricting rates, a mighty deluge of people breaking upon the repose of the roads, scarce a drop of it came from the vast

ocean of humanity. They who traveled were village people and a very few well to do country people. From the counties along the Missouri river not five people in a thousand took advantage of the low rates.

The experience in all the history of business shows that the old saying is true, "a miss is equal to a mile," when your price, or rate, is above our reach it matters not how high or how low you run it. A fifty dollar trip is out of the reach of a poor family, and so is a five hundred dollar one. If the rates can not be reduced to something like trip charges of ten cents per one hundred miles, the great mass of the people can not travel for pleasure. Ridiculous as this rate may seem, it is not more so than penny postage seemed to those accustomed to pay 25 cents per letter. Had the postal service been monopolized by individuals, the thousands of mail routes would now be stocked and bonded and set to earning dividends for stockholders. This wealth, which would, in that case be represented by stocks or bonds, is now the common wealth, and every soul in these States is made happier and more comfortable in its enjoyment. And if every public necessity were administered in the same way, the amount of wealth vested in the commonwealth would be enough to make the poorest, most hopeless citizen of the land comparatively well off.

Did you ever consider how it would be with us to-day if the postal service were as dear as it was in 1840? Did you ever try to estimate what tremendous results stood behind the seeming trivial bill to give the people cheap postage? What inventions, what infinite quantities of cheap publications, how much nearer it brought us all together!

Mighty as were those effects, they are small as compared with what will follow such cheap transportation as the times demand. I verily believe that the mystery of these hard times, this blight on business, this unrest, suspicion and indignation, now pervading the great bosom of humanity, lies right here—that whereas the times demand the utmost freedom of intercourse and of opportunity, here are these everlasting restrictions. Fifty years ago the difference between the rich and poor, except in the great cities, was not much, and it consisted in things the working class cared little about. There was the same freedom of movement and opportunities in the pursuit of happiness. If the rich man went in a carriage the poor went in his cart, and perhaps got there first. To-day the poor feel bound like serfs to their localities, while the rich fly to the ends of the earth. This is felt like a weight or shackle. Imagine a contrary condition, and that this grand invention had been developed in the interest of the commonwealth, so that millions of tons of freight, now rotting or useless, can be moved

and operated upon by labor; so that all the people, everywhere, can take long journeys. Again you shall see the country instinct with human life and motion—people going and coming on business or pleasure everywhere. The man toiling in the lowest, darkest mine feels a thrill of hope as he thinks of that vacation trip he will take with his family to some far-off region, where he can earn as much, if necessary, as will keep them; or can fish or hunt for amusement. Verily, this is the grandest idea of the age! Without one knowing it, the pressure for its realization is becoming dangerous to the point of explosion. Right this thing and a thousand evils that are but symptoms of this disease—restriction will disappear. Right it wisely and peacefully, else war shall come to do the work and perhaps leave as great evils to grow up in its path.

While perhaps one million people travel on business or pleasure a great deal, forty millions, in effect, never journey at all. Convince the public mind once that low rates, such as have been indicated, will pay the roads best by spreading knowledge of the truth and the reform must come. The blessings that come from the genius of man are as much the dower of our common humanity as air, light, sand and water.

Mr. Goodman.—I will just call attention to how the Illinois Central railroad has done in regard to strawberries. They made low rates, and during the season they had thirteen cars of berries a day to carry from Centralia. Not so at Alton; hence they have no market for fruits. It will be just so with the transportation of persons, the travel will increase with the lowering of the rates, so that the companies will make more money at the low rates than at the high.

Mr. Follett.—This is a big question, we are in a town that is being ruined by the management of the transportation companies. Their discriminations center the population in the large cities. There is only one way it can be taken in hand and remedied, and that is by the people, taking hold of it through legislation, State and National, and compelling the companies to do right. The rates should be fixed at one set price, so that the big dealer can not undersell the small dealer. I was in Iowa this fall. In some of the interior counties a cattle car to Chicago cost seventy dollars, while at Omaha, seventy-five miles

farther the price was thirty-five dollars, thus ruining the man by the way for the benefit of the one at the terminus. No merchant can prosper here if they can undersell him at the end of the road. We are too kindly with the railroad companies. They take all out of us we can bear. The roads of this country have \$7,000,000,000 of watered stock upon which the people must pay dividends. That watered stock is so much highway robbery as it would be to write a mortgage upon your farm and compel you to pay interest upon it, you have to pay dividends upon it because you have to ship over the roads to reach a market for your products. If you submit to one wrong they will do another greater. Let us demand justice, and right and square dealing.

Dr. Gordon.—Let them pay taxes upon their watered stock.

Mr. Follett.—That will not reach the case. If you give me a mortgage upon your farm I will pay the taxes on the mortgage.

Mr. Irvine.—I don't believe we can control it by legislation. It can be done only by the people rising up in their might and demanding it.

Mr. Laughlin.—I spent five years of my life fighting a railroad company. I know they procure and adapt legislation to suit themselves. It is a great danger to the liberty of the American people. They are shaping the decisions of the courts, even to the Supreme Court of the United States. The homes of thirty thousand people were taken away from them and given to James F. Joy by a decision of this court.

SOIL CULTIVATION.

BY NATT. STEVENS OF FORNEY, TEXAS.

MR. PRESIDENT: We have in this part of Texas a very black waxy soil. This soil is of a consistency—of ingredients composing it—to cause it to bake and crack in drying the moisture out of the soil

and to a depth corresponding to its extraction from below the surface of the ground surface. It lacks a little in potash to make it best. It is covered over generally—in its new state—with an uneven surface called hog wallows, created not by hogs, but by the soil cracking—shrinking, and in time having the appearance of being made by hogs; and it does the same thing to-day where our crops are not properly cultivated. It is a soil that retains its moisture well, and it will raise large crops when well cultivated. This year has been the driest one since I have been in Texas. It has tried us severely, and those who have trusted to God and nature, without a continual stirring of the soil, have come very short of a crop of anything, and those who have been constantly stirring the soil in drouth, have reaped a full and rich reward for their labors.

In fruits generally this season they were two or four weeks late in blooming. The drouth struck us in June. Grapes were very small on land not cultivated extremely well; no rot, but little mildew; early varieties ripened well until the last of July, though small; August ripening varieties did not ripen until the last of September. The leaves dried up and fell off in September and an entire new growth started in September of the vine and blossomed some this fall. Some peach, apple and pear trees also blossomed again this fall from the same cause. The *Vitis Rotundifolia* variety of grapes did not shed their leaves at all, but remained green to the end of the season.

In pears, they were late; Bartlett's ripened in September—some on the trees in October; Duchess in October; LeConte later than usual; Lawrence and Keiffer ripened in November; fruits generally small this year, but where there was continued cultivation in our orchards our fruits and fruit trees and vines have done well. For Texas I recommend the constant stirring of the top soil every eight or ten days during the months of June, July and August, so as to prevent the evaporation of moisture from the soil, both for fruits, trees and vinyards. Without moisture in the soil we get no crops; without continued cultivation of our crops in a dry season like the past, we keep but very little moisture in the soil for growing our crops.

The planter should strive to retain in the soil all the moisture necessary for growing crops to be grown, and this he can do to a great extent if he will only use all proper means at his command to do it. Cultivation acts beneficially in other directions, for, by loosening of the soil, it allows the air and warmth to penetrate more readily to the roots of our growing crops. Rain, as it falls, is taken up by the soil and it is carried down by the power of gravitation. This continued

movement of the water is more or less active in proportion to the quantity held by a soil. There is a saturating point varying in the different soils when the water moves with reluctance. There is a power directly the opposite of gravitation—the tendency to go down, namely, capillary attraction, the power for liquids to raise themselves in air, like spaces or tubes. You can see this power by taking a cube of sugar and dipping the tip of it in your coffee, when the liquid will rapidly rise to every part of the sugar until it is filled to its saturating point, when there will be no further movement of your coffee liquids. Again, the same thing may occur when you take the wick of a lamp and as soon as one end touches the oil, the oil at once rises in the wick, filling all the tubes or spaces in the wick, and to that extent diminishes the oil elsewhere in the lamp; but when saturated to full extent of the wick all movement ceases. Light, however, the end of the wick, when oil will be consumed to feed the flame, and the movement of the oil in the wick will begin, which will continue as long as it burns or until all of the oil in the lamp is exhausted. This is the way water and moisture is removed from our soil. The sun is a burning fire-place; a hard surface soil with unbroken tubes or spaces, or growing plants, are the wicks, and the soil, to a number of feet in depth, is the reservoir. As long as these wicks, the crust of the soil and plants or weeds—for these are wicks—remain, evaporation will continue until the soil is exhausted of its water to many feet in depth. This water is being removed by the sun, or heat, from near the surface, while the water is being continually brought up from below to supply the sun's action, until eventually but little more is to be had to supply growing vegetation or the sun's demand for water, and as a consequence all kinds of crops suffer. This being a fact, it becomes the planter's duty to study how to stop this constant evaporation of water from our soils. To stop all unnecessary evaporating is the highest duty of the planter that he owes to himself and to his; for every tree, plant, spear of grass, weeds of all kinds, and every living growing thing is an evaporator of water and moisture from the soil that it grows in, is a fact, and as long as they continue to grow each of them will absorb and throw off moisture is equally true. Now to stop this unnecessary evaporation we find that the planter can, to a very great extent, regulate it at his will.

We find that capillary attraction goes on very easily through hard but porous substances where spaces are wide apart or somewhat broken up. For instance, take a dry brick, place it on a wet sponge and it will draw the water or moisture out of the sponge, and if placed in

the sun it will draw the water out of both in a short time. Now reverse the order, put a dry sponge on a wet brick and no water will be taken up, and if placed in the sun the dry sponge will protect the water from evaporation in the brick. Thus it that by plowing we break up the hard crust (a favorable condition for capillary attraction) with its tubes and small continuous spaces, changing it to a loose earth without continuous spaces for water to climb in, which acts like a sponge, as it forms a loose pulverized mulch that protects the moisture in the soil underneath it from evaporation, for then there is no water exposed to the sun to evaporate into the above, for the wick is thus cut off. Thus lands cultivated, but not planted in crops, will retain their moisture all summer, as all of you must have observed. These conditions are quickly changed when such ground is growing weeds or planted in some crops. The reason of this is very simple and easily understood. Moisture and sunshine, or warmth, are a necessity for the growth of all plants. Water is taken up from the soil by the plants or weeds roots and it is carried to every part of the plant—leaves and all—where it is exposed to the sun and evaporated, and this movement continues, as in the lamp, until the soil is exhausted of its water, when growth ceases. This should teach us to keep our ground all clean of weeds and every unnecessary vegetation, ; to allow them to grow at all they rob our soils as well as our crops of water needed for their use. It follows, therefore, that the larger trees, plants or vines are, the more leaves there will be, and consequently the more evaporating surface for the sun to act upon, and the more water will be required and evaporated. You must readily see that if you raise weeds you will have additional wicks to draw the water from the soil, and to rob the crop you wish to raise. Therefore, plowing and cultivation of the soil accomplishes both purposes by keeping the soil loose and by destroying the not wanted vegetation. Cultivation should be as often as a hard crust begins to form on the soil ; this may be sooner or later, for different soils differ in this respect.

Rain will form it as soon as the surface dries, and for this reason light cultivation should follow every rain, when possible to do it, as soon as the soil will work kindly, and then it will be found that such rain will do twice the good and the ground will remain moist twice as long as when it is neglected ; and as often thereafter as eight or ten days through the seasons growth, and your crops will show the benefit of it in no doubtful manner by renewed growth and vigor. By this continued process it is possible to stop the bad effects of a drouth on

our cultivated crops in this region of our state. Our soil is such that it stands any ordinary drouth well, and by the process mentioned above, preventing, or at least neutralizing, its effects is as good as a cure.

Hoping our planters will see the necessity for a more vigorous and energetic action,

I remain yours,
NATT. STEVENS.

WEDNESDAY, 7 P. M.

This evenings session was one of the most enjoyable ever held by our society.

REPORT BY MRS. WADE BURDEN, SPRINGFIELD, MO.

L. A. Goodman, Secretary Missouri State Horticultural Society:

DEAR SIR: It will be impossible for me to attend the meeting at Lexington. I regret this exceedingly, as I enjoy the meetings, they are so instructive and inspiring. Your society is doing noble work and have the sympathy and good wishes of very many not identified with the society.

You remember a paper written by Mr. Phoenix, of Charleston, Mo., on keeping tender roses through the winter; it was read at the summer meeting in Springfield. We tried his method with the greatest success, not losing a plant out of sixty-five. We had Catherine Mermet, Etoile de Lyon, Perle de Jardins, Marshal Niel, and many other varieties, and had strong healthy plants this summer from all of them. One Marshal Niel had four branches from twelve to fifteen feet long. It did not flower during the summer but budded in the fall from every joint. Unfortunately the season was not long enough for the buds to mature. We cut from forty to sixty roses a day during the hot dry weather of August and September. We planted deep and only watered till the plants were well set. We shall try the same plan this winter with the addition of laying down the tops, hoping to preserve some of the old.

wood. This we did not do last winter. Our plants this spring were all from the ground.

Hoping you may have a pleasant meeting,

I am yours respectfully,

MRS. WADE BURDEN.

SPRINGFIELD, Mo., Dec. 5, 1886.

DISCUSSION.

Mr. Nielson keeps tender roses alive in the open ground by taking away some of the soil from one side of the plants, pegging them, covering with sods, and taking them up in the spring. Plants thus treated he found alive and ready to grow in the spring, and he never had roses do better than these.

Mr. Roberts suggested that the geranium was very easily kept over winter in the cellar in almost any way to keep them from freezing. It can be tied by its roots and hung to the joists. They may be planted thickly in a box, given one good watering and thus kept over for the next season.

Mr. Tracy—They must be well cut back to be kept over in good condition. I know of no way to keep Verbenas in the cellar.

THE QUEEN OF FLOWERS.

BY HANS NIELSON, ST. JOSEPH, MISSOURI.

In history, song and poetry, the rose has been honored with the name "Queen of Flowers," and when we observe the place it occupies in commerce to-day, it will not be improper to still use the same term.

Among the various riches of the garden, there are many flowers of great attractions; some we admire for their beautiful forms, others for their brilliant colors, and others again for their delightful fragrance;

and we scarcely know which to pronounce the most pleasing, but whatever may be our feelings of admiration for these beautiful flowers, a desire for something still more beautiful draws us to the rose and compels us to pronounce it superior to all its rivals. It is the rose alone that never fatigues, that always exhibits some new beauty, and that is never affected by fashion, for white Asters, Dahlias, Sunflowers, and many other flowers have had their hour and favor, and have passed out of notice, the rose, by reference to history, has been a favorite for nearly four thousand years and is still the most beautiful flower of the floral kingdom. The rose is distilled into oil and used as perfumery by ladies of ancient as well as modern times, commonly known as attar of rose.

The rose has adorned the altars and entered into the most sacred religious rites: societies of various kinds have used the rose as emblems of purity and beauty, and the fashions of to-day show what great popularity the rose has attained. There is scarcely a wedding, a funeral, a ball, a concert or entertainment of any kind where flowers are not used and the rose predominates above all other flowers, in order to add richness and beauty to the design. As a flower used for boutonier the rose has no equal, and for ladies' personal ornament other flowers may be used, but when richness is desired the attention is turned to the rose.

Varieties of roses mostly used for cut flowers at the present time are Perle des Jardins, a rich golden yellow, which take the place of Marshal Niel; Niphetos, large white; Sunset, saffron color, tinted orange; Catherine Mermet, delicate shade of pink; La France, silvery rose changing to pink; Bon Silene, deep rose color; Saffrano, saffron and orange. Of newer varieties comes Bennett, dazzling crimson; American Beauty, deep rosy carmine; The Bride, creamy white flowers. These roses are all teas, and may be classed as ever-blooming roses and easily had in bloom the whole year. Another rose I must not pass by without mentioning, is Gen. Jacqueminot, a hybrid perpetual of a dazzling crimson color, greatly admired when in bloom, but owing to its hybrid perpetual nature cannot be brought into bloom all the year round.

The above mentioned roses are grown in large quantities in this country, and the cut flowers are bought and sold in the same manner as produce and merchandise. The rose has another purpose, which is to adorn our yards and gardens, public parks and cemeteries, and in reality this last place is most concern to us all. Who would not wish as a first choice a white rose to mark our last resting place and voice

the sentiment of purity and peace to our parted friends? And in conclusion, let me say, out of all the blessed flowers God has placed upon the the earth (if only one flower is allowed to me) I say give me the Queen of Fowers.

LANGUAGE OF FLOWERS.

BY MRS. DR. GOSLIN OF OREGON, MO.

In Isaiah we find these words: "The beauty of Lebanon shall come unto thee, the fir tree, the pine and the box together to beautify the place of my sanctuary."

In every age and country the wise and good have recognized the influence and refining effect of flowers. In every walk of life, from the palace to the lowliest home, they wield an influence unlike anything else, and if tradition be true, they hold an emblematic power over every nation of the earth. Mythology teaches us that even the heavenly bodies are ruled and reigned over by the flowery kingdom, and the monarchs of the forest: be this as it may—they have been the medium through which many lessons have been taught. It is said a noted count who was imprisoned for life and become so embittered by his fate as to believe there was no goodness in God and no justice in man, was taught the lesson of submission, patience and a hope of the life to come, by a little flower that sprang up between the flag-stones of his prison walk, by watching its coming into life, surrounded by gloom, with little sunshine and no cultivation. Later on it put forth its delicate little bloom and at the appointed time designed by nature in her orderly work, it would die down and pass from sight to come again in the spring, stronger and more beautiful each year, better able to endure its unhealthy surroundings. The language spoken by this little flower, although silent, made an impression upon a human soul that made the hard life brighter, restored confidence in God and his fellow-man.

The old-fashioned Marigold, that is disliked so much on account of its disagreeable odor, is a very distinguished flower in the country which it has the honor to represent. The Hindoo attaches great importance to the Marigold; it is their emblematic flower and means the "Star of earth." The poet has made this flower say to its people:

"Thou bade me shine and when my ray
Won thee to thoughts of heaven,
From earth and care and toil away,
My light was freely given.

Would'st thou a star's bright beam retain
To guide thine earthly way,
Then know thy thoughts must pure remain
Beneath its heavenly ray.

China claims for her emblematic flower one whose language is most appropriate for one of the leading flowers of two continents, the much admired Chrysanthemum, the language of which is, "A sunbeam through the clouds." The Chrysanthemum, while a native of China, belongs by adoption to the Americans as well as most countries on the Eastern continent.

The Heliotrope belongs to Egypt. Its fragrance and color is classed among the most delicate flowers in our country; the language applied to it does not seem applicable. "Soul of my Soul," like most things that once belonged to that country, means the center of greatness. There is little left but a history of that greatness, of a strong and powerful people, but its lovely emblematic flower is loved and cared for by its friends in other countries, where it grows and thrives with close attention. It is one of the strong feeders and requires the very best of soil. Like Egypt's last sovereign, the celebrated Cleopatra, neglect is disastrous, and death will be the result. Unlike its sister, the Lily of the Nile, whose strength and beauty can be had by supplying her with plenty of water and good garden soil, she will multiply and replenish, as nature intended her to, with both flowers and bulbs; therefore gives more satisfaction than the more favored Heliotrope. But this "Soul of Soul" must be fed and flattered and pruned with care, then she will fully repay with her dark purple lavender and white blossoms.

The Hibiscus is a child of Syria; the language of which is, "Delicate beauty;" it will live in any country, North as well as South, if protected from the cold.

The Lotos was claimed by the ancient Greeks as the fruit and flower of their destiny. The fruit is said to have a very soothing effect,

also the odor of the bloom. They believed Paradise was supplied with an abundance of this delicious fruit. The language of the Lotos is, "Keep silent." This people must have considered the value of the Lotos before the Trojan wars, after which their time seems to have been spent in active fighting, and they have been thoroughly wide-awake to their greatness.

Tennyson, I think, it is who wrote of the Lotos eaters.

Come, they sing, to our dreamless home,
Where the bright-eyed lotos eaters roam,
Where glide the waters slow,
From their native hills of snow.
And they mimic the roaring waves of ocean
As they gurgling wind with a wavy motion.
Richest here are the Lotos Palms,
And darkest the shade of their outstretched arms.
Come and taste of the spirits calm,
That soothes to rest the weary heart,
And bids the shadows of grief depart.
Sweet is the bliss of our dreaming band,
Sweet are the joys of our favored land,
Human passions are not here,
Love, hate, hope nor fear.

The Thistle, the honored flower of Scotland, means the same the world over, "I am afraid of you," and is very prolific in any soil. Man seems to think it his duty to work with vigorous energy to exterminate it from the face of the earth. "Poor thistle," its only friends are the decorative artists, who admire the bloom and is used very extensively for fancy work. The color of the blossom of the purple variety combines well with many of our native flowers.

The Shamrock belongs to Ireland, the language is "an obstacle." The language of this flower seems in keeping with the fate of this unfortunate country, or its people have adapted themselves to the meaning of their emblematic flower.

The ancient Greeks and Romans were firm believers in Mythology, they believed their gods and goddesses were devotees of certain flowers and trees. Juno, the wife of Jupiter, who was the goddess of dignity claimed the Lily as the flower of her destiny.

Venus, the goddess of love and beauty, favored something with a more lasting sentiment than most of her sisters. The Myrtle whose language is "I only change in dying," was the vine of this lovely queen, Destiny, and is admired by every one for its dark evergreen foliage since the time this goddess of beauty found it clinging to some

strong Oak. As we have been taught by tradition and mythology that Juno was the wife of Jupiter, who was the chief of all the gods and reigned over the heavens as well, claimed this king of the forest as the tree which suited his power and strength, the "brave old Oak."

Now the theory of the vine and the Oak must have had its birth in the brain of some modern Jupiter, for Juno, his wife, loved the Lily, and Venus, the clinging Myrtle, was the spouse of one of the lesser deities, who would have objected to the familiarity of such a position. Minerva, the goddess of wisdom and skill, claimed the Olive and the Violet. Mars, the god of war, the Ash. Hercules, the Poplar. Mythical history has her people thoroughly identified with nature and especially the flowery kingdom.

The Sunflower, which was thought to be indispensable in the gardens of our grandmothers as a very showy plant and for the quantity of brown seeds so useful for chickens when troubled with the gapes, has become one of the things of the past. This curiosity became so from the habit it has of turning its head and following the sun from the rising to the setting thereof. Tradition says that Clytia, daughter of Orchamas, king of Babylon, was beloved by Apollo, famous for his beauty and said to be the brightest of the ancient gods. He seems to have tired of the lovely Clytia and deserted her. She pined away with continually gazing at the sun, which she believed to be her hero Apollo, until she changed to the Sunflower, which continues to this day to follow the track of the sun across the heavens. And the language of this wonderful flower with its sad history is "God of my heart's idolatry."

The Evergreen, as we learn from the prophet Isaiah, has been considered a leading factor in all church festivities. The sacred calendar of all churches have their emblematic flowers; particularly is this so with the Church of England. With them Holly is used for Christmas-day. The language of this evergreen is "Am I forgotten?" The Palm is used for Palm Sunday, which means "Victory." On All Saints day will be seen the beautiful Amaranthus with their many glowing colored foliage and flowers, that is said to be very charming and the language is very suggestive and meritorious, "Will you meet me in Paradise?" where we believe the home of the saints will be in the true flowery kingdom, far more beautiful than has ever been seen on this earth.

Through the medium of flowers the lads and lasses of all ages owe much of the progress of their love affairs. A decade or two ago we remember what importance was attached to a small nosegay; it told a tale of joy or disappointment; a bouquet of Sweet Pea, Canterbury Bell

Evening Primrose and Blue Bell conveyed a meaning well understood by the maidens and should the heart be seriously affected, its intelligence would be sad indeed. Combined they meant that their "love was too lovely to last."

"Our love was like the light perfume
That floats around the flowers.
Or like the rainbows passing,
Half sunshine and half shower."

We who have outlived the romance of youth and learned that life is a reality, still love the flowers, not for their language or sentiment, but for their purity, brightness and satisfaction they return for the care we give them. They bring pleasure and good cheer almost without money and without price. Whether they come to us in the morning, noon or evening of life they form the rainbow of faith and hope between heaven and earth.

"Oh! thou who mourest hopes decayed like blossoms in their bloom,
Scorn not the heavenly comforters that come to cheer thy gloom,
Let earthly sorrows blend her tears with pure religious smile,
So shall a glorious rainbow down upon thy path the while,
Faith's soft celestial bloom shall smile by Hope's unfading rose,
While peace in sunny golden light beside them shall repose.
They shall wreath thy way with beauty and when earthly ties are riven
They shall make that brilliant bridge its pathway into heaven."

MRS. DR. A. GOSLIN,
Oregon, Mo.

The committee on cut flowers made the following report:

1. Best hand bouquet, 1st premium, \$2, to Hans Neilson, St. Joseph; 2d premium, \$1, to J. P. Coen, Lexington.
2. Best table bouquet: 1st premium, \$2, to Hans Neilson, St. Joseph; 2d premium, \$1, to J. P. Coen, Lexington.
3. Best wreath: 1st premium, \$3, to Hans Neilson.
4. Best basket: 1st premium, \$3, to Hans Neilson; 2d premium, \$2, to R. S. Brown & Sons, Kansas City.

5. Best other design; 1st premium, \$3, to Hans Neilson; 2d premium, \$2, J. P. Coen.

6. A gratuity of \$2 was given to Mrs. Shultz for a beautiful basket.

PROF. L. R. TAFT,
MRS. L. A. GOODMAN,
MRS. DR. A. GOSLIN.

REPORT OF COMMITTEE ON FRUITS EXHIBITED.

Mr. President and Ladies and Gentlemen of the Missouri State Horticultural Society:

Your committee have examined the fruits on exhibition and beg leave to make the following report:

In making our report we have endeavored to take into consideration the perfection of the fruits, taking into consideration all the points of size, color, freedom from bruises, insects, injuries and other defects, such as absence of stems, etc. We did not understand that premiums were for the largest fruits and we have in some instances considered plates of smaller specimens superior to those of larger size when the same were better colored, more perfect, or had stems attached, and the larger ones were deficient. We do not claim to be infallible and may have made some mistakes, but we have done what we in our judgment thought was right and proper, and we hope that our awards may be satisfactory.

AWARDS ON PLATES.

Best Plate of Ben. Davis.

1st. premium, \$1, J. A. Durkes, Weston.

2d premium, 50 cents, G. Blake, St. Joe.

Best Plate Baldwin.

1st premium, \$1, J. A. Durkes, Weston.

2d premium, 50 cents, H. Speer, Butler.

Best Plate Culp.

1st premium, \$1, N. F. Murry, Elm Grove.

Best Cider Crab.

1st premium, \$1, Lafayette county Society, Lexington.

2d premium, 50 cents, N. F. Murry, Elm Grove.

Best Clayton.

1st premium, \$1, Z. S. Ragan, Independence.

Best Fall Pippin.

1st premium, \$1, Lafayette county Society, Lexington.

Best Fallawater.

1st premium, \$1, Lafayette county Society, Lexington.

2d premium, 50 cents, Henry Speer, Butler.

Best Gilpin.

1st premium, \$1, Dr. A. Goslin, Oregon.

2d premium, 50 cents, D. S. Holman, Springfield.

Best Grimes.

1st premium, \$1, E. A. Sylvester, Osborn.

2d premium, 50 cents, N. F. Murry, Elm Grove.

Best Golden Russett.

1st premium, \$1, Lafayette county Society.

Best Gano.

1st premium, \$1, E. A. Sylvester, Osborn.

2d premium, 50 cents, M. Butterfield, Lee's Summit.

Best Gilliflower.

1st premium, \$1, Lafayette county Society.

Best Gen. Lyon.

1st premium, \$1, W. G. Gano, Parkville.

Best Huntsman.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, G. Blake, St. Joseph.

Best Ingram.

1st premium, \$1, D. S. Holman, Springfield.

Best Janet.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, J. A. Durkes, Weston.

Best Jonathan.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, Jos. Gamble, Brookfield.

Best King.

1st premium; \$1, Lafayette county Society.

Best Lawver.

1st premium, \$1, G. Blake, St. Joe.

2d premium, 50 cents, Lafayette county Society.

Best Lansingburg.

1st premium, \$1, Lafayette county Society.

Best Ladies Sweet.

1st premium, \$1, N. F. Murry, Elm Grove.

2d premium, 50 cents, D. S. Holman, Springfield.

Best McAfee.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, D. S. Holman, Springfield.

Best Monmouth Pippin.

1st premium, \$1, J. A. Durkes, Weston.

Best Milam.

1st premium, \$1, Dr. A. Goslin, Oregon.

2d premium, 50 cents, Lafayette county Society.

Best Missouri Pippin.

1st premium, \$1, Dr. A. Goslin, Oregon.

2d premium, 50 cents, Lafayette county Society.

Best Newton Pippin.

1st premium, \$1, D. S. Holman, Springfield.

2d premium, 50 cents, J. A. Durkes, Weston.

Best Nickajack.

1st premium, \$1, Lafayette county Society.

Best Ortleby.

1st premium, \$1, Lafayette county Society.

Best Pryor's Red.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, J. A. Durkes, Weston.

Best Pennsylvania Red Streak.

1st premium, \$1, Lafayette county Society.

Best Pennock.

1st premium, \$1, Lafayette county Society.

Best Rambo.

1st premium, \$1, Lafayette county Society.

Best Rome Beauty.

1st premium, \$1, Lafayette county Society,

2d premium, D. S. Holman, Springfield.

Best Stark.

1st premium, \$1, J. C. Evans, Harlem.

Best Smith's Cider.

1st premium, \$1, H. Speer, Butler.

2d premium, 50 cents, D. S. Holman, Springfield.

Best Swaar.

1st premium, \$1, J. A. Durkes, Weston.

Best Stannard.

1st premium, \$1, Z. S. Ragan, Independence.

Best Twenty Ounce.

1st premium, \$1, Lafayette county Society.

Best Tallman Sweet.

1st premium, \$1, Lafayette county Society.

Best W. W. Pearman.

1st premium, \$1, J. A. Durkes, Weston.

2d premium, 50 cents, Lafayette county Society.

Best Woodmansee.

1st premium, \$1, N. F. Murry, Elm Grove.

Best Wine Sap.

1st premium, \$1, N. F. Murry, Elm Grove.

2d premium, 50 cents, Lafayette county Society.

Best Willowtwig.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, Gilbert Blake, St. Joe.

Best White Pippin.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, Dr. A. Goslin, Oregon.

Best Winter May.

1st premium, \$1, W. G. Gano, Parkville.

Best Vandevere.

1st premium, \$1, Lafayette county Society.

Best Yellow Bellflower.

1st premium, \$1, Dr. A. Goslin, Oregon.

2d premium, 50 cents, D. S. Holman, Springfield.

Best York Imperial.

1st premium, \$1, Lafayette county Society.

2d premium, 50 cents, W. G. Gano, Parkville.

SEEDLINGS.

Of seedlings, your committee found a collection of sixteen plates, and awarded the first premium to plate numbered 126, called Howell, discovered in the woods of Howell county by Mr. Levi Smith; above medium in size, striped red on yellow ground, very good rich quality, said to be in use from August to May.

The second premium we award to plate No. 29, now known as Shockley's seedling, so named because grown by Mr. Shockley, but as

we already have a Shockley, your committee suggest that some other name be given it. We find it of medium size, green, partly covered with red, almost sweet, fine grained, spicy and excellent, a fine desert apple.

The third premium we have awarded to plate No. 130, exhibited by J. H. Monsees of Beamen, Pettis county, Mo., supposed to be a seedling, and from its appearance, your committee think that supposition to be correct. It looks as though it might be a cross between the Ben. Davis and Winesap. Quite large in size, dark red, slightly striped, solid, heavy, and has the appearance of being a good keeper. Better in quality and texture than the Ben. Davis.

The other seedlings on exhibition we have examined we found as follows :

No. 17—Dark red, above medium, white fleshed, fair quality.

No. 18—Yellow light blush cheek, medium size, sub acid and very good.

No. 19—Greenish yellow, with blush, past its season, large.

No. 125—Gano—Not as large as Ben Davis, more highly colored and no better in quality.

No. 45—very large, similar to Ben Davis in color, acid very good.

No. 28—Ruby—Large, dark red, mild sub acid, very good.

No. 30—Very large, yellow, only good, coarse.

No. 117—Medium, lightly striped on green ground, fine grained, very good.

No. 115—Striped dark red, over ripe, medium size.

No. 156—Large, striped light red on yellow ground, a sweet apple of fair quality.

No. 146—Large, yellow with red cheek, white flesh, fine grained, but not in condition.

Some of these seedlings were very good fruits and may in time prove themselves to be of sufficient value to be grown, but taking into consideration the great number of varieties already in existence, they will have to develop other qualities in habit of growth, productiveness, etc. not apparent in the fruit. Even those varieties to which premiums have been awarded may fail on trial to have enough good qualities over similar varieties already in existence to justify their being grown.

We also find on the table a collection of mammoth onions grown from seed, corn and wheat, Chinese quinces, all of very fine quality. Also some wine and brandy, the quality of which the committee could not judge, as we had no tumblers for that purpose. We find on the

tables a collection of sixty nine plates of apples exhibited by the Lafayette county Horticultural Society, all of which were large, highly colored and very fair, and much praise is due this society for making so fine a display.

There is also a bunch of celery from Mr. N. F. Murray, of Holt county, said to have been grown on land that had never been manured, which are fine samples to have been grown in such manner, and certainly he who can grow such celery without manure, ought never to be without.

Your committee find a collection of 150 plates of apples and pears exhibited by the Missouri State Society, collected by the secretary from various parts of the State, comprising the best apples of the land, embracing many very valuable late acquisitions in the way of new varieties, all in a very fine state of preservation, making a very fine display indeed, especially so considering the effect of drouth in almost the whole State. This collection is not made or shown for premium, but for the advancement of Horticulture to feast our eyes upon in our meetings, which cost the secretary much labor, as well as to give him pleasure in pleasing others. He surely merits, for this display, the thanks of the Society and its friends.

Respectfully submitted,

E. A. REIHL,

Secretary.

ORNAMENTATION OF SCHOOL YARDS.

BY C. C. BELL OF BOONVILLE, MO.

I comply somewhat reluctantly with the task assigned to me, knowing that the subject of "Ornamentation of the School Yards" has not occupied my mind and attention near as much as some other matters, hence I fear I shall fail to do the subject justice. Now, while I do not claim any ability for public speaking, yet I believe had your worthy secretary assigned me the task of saying something about the profits and losses of packing and shipping apples, or what I know of

the "trials and tribulations" of a fruit dealer, the life of a bachelor, or anything in that line, I might have entered into the subject, backed up by some experience.

However, since my weakness in this line was, perhaps, not known to the Secretary, I will pardon him, and hope the critics will deal with me gently—if I fail to do justice to this important subject.

In looking about us, we find prominent among the institutions of our land, that we may feel proud of, and to which we may look with great hopes in the future, is our wide-spread and firmly established free school system, which offers alike to the rich and the poor, regardless of race and station, a liberal school education.

We may truly be grateful for living in a land and under a form of government where the great importance of education is recognized and liberally provided for.

Reviewing the progress made in the past quarter of a century, we find great changes. Many of you will remember the primitive school houses of our early settlers, where school was taught, on an average, about three months out of twelve, and where the blue spelling book and a well prepared hickory occupied prominent places as instructors. I well remember the little country school house of my boyhood, located on the brow of a wooded hill, the grounds uninclosed and unadorned, save by nature's untouched forest trees. To-day we find that many of those primitive structures have made way for more modern and often quite costly buildings, comfortably furnished and supplied with improved school books and competent teachers, in which from seven to nine months school annually is maintained.

Permit me, briefly, to call attention to our present free school system, showing the educational progress of this State.

There were enrolled in the public schools of Missouri in 1881, 723,484 pupils; in 1885 there were 805,313, showing an increase in four years of 81,829. In 1881 there were employed in this State 11,659 teachers; in 1885 over 20,000. There is but one State in the Union ahead of Missouri in her permanent school fund. Fifteen years ago there was no such a thing as a Normal school in the State; to-day we have three.

I might go on and give you statistics showing the general progress of school work, but suffice it to say, that there have been greater developments in science and learning in the last twenty-five years than were made in a century preceding. But while we have wonderfully advanced in this direction, while our school houses have been remodeled and enlarged, our system of education improved by adding higher

branches of study, etc., yet we find much needed knowledge and useful education neglected and overlooked. I refer to practical knowledge of horticulture, floriculture and ornamentation of home, public grounds, and especially school yards.

This subject, in connection with our free schools, may appear to many of you unimportant, but after due consideration you will realize its value. It is needless for me to demonstrate to you the refining and elevating influence ornamental floriculture and horticulture imparts to the human minds, together with its beneficent and healthful exercise and pleasure it gives us. That this is true we find demonstrated in the fact that some of our greatest minds find pleasure, recreation and rest in rural pursuits.

Not long since I read some European correspondence describing how Count Von Moltke (the greatest living military mind of Europe) spends his time. Among other things the writer says: "The general loves his little farm, and spends his morning hours in supervising his laborers. After this he attends in person to his garden and nursery, especially to the latter, which he musters as strictly as if the young saplings were a regiment of recruits. He prunes them carefully with his own hands. It is one of the silent soldier's most prominent characteristics, that he hates all that is incompetent—all that is unfitted to its task and purpose."

"Surrounded with all that wealth, title and national prominence can bestow, yet we see that this master mind of the great Field Marshal finds untold pleasure, satisfaction and rest in his personal attention to training of trees, shrubs and flowers at his quiet country home."

The love for the beautiful seems to have been implanted by the allwise Creator in every human breast; wherever mankind is found, regardless of race or condition, we find expressions for the beautiful. But the higher the civilization the more refined and cultivated the taste for nature's beauty. We may more fully realize this when we listen to the reading of such grand productions as the paper read last night by our friend Laughlin on "The Red Oaks of the Loess Hills." What mighty ideas and thoughts of the sublime are presented to us, showing how nature everywhere is grand and elevating; what inexhaustible fields of knowledge and charming beauty and the universal presence of an Almighty Creator, may we discover in nature. Even a blade of grass or the smallest flowers, when viewed under the microscope, reveal to us a system of beauty and symmetrical forms, and we may fully comprehend "that Solomon in all his glory was not arrayed like one of these."

It is therefore of great importance that the young minds receive some early training in this direction, and be so surrounded, especially at school, as to more readily comprehend. To assist in accomplishing this end, much may be done in our school yards, though as a rule we find them utterly neglected, and often in a wretched disorder.

Not long since I visited the country school house of my boyhood. I noticed many changes. A much larger building stands in the foreground, furnished with modern school furniture, presided over by efficient teachers, with good discipline, and improved school books.

Our modern educational progress shows many traces in this direction. But how about the school yard? That which twenty-five years ago was adorned with nature's forests, has even been robbed of this, and to-day it appears bleak and neglected, marked only by the stumps of the destroyed trees, but no traces of ornamentation are visible, not even the planting of a shrub.

The educational training is wholly confined within the school house, and yet the school yard seems to suggest so much of practical and useful learning.

Several years ago, while in Europe, I could but notice the contrast. While we, as a nation, excel the old world in much practical machinery and new ideas, yet in this direction we would do well to copy from them. There you may see (especially in the country schools of Germany) not only a well laid out and ornamented school yard, but garden and nursery grounds attached, where at the proper season of the year pupils receive practical lessons in horticultural work. This early training is not only healthy, but creates an early love for the beautiful and useful; it initiates the young minds into a system of industry and economy, which to all classes, be they rich or poor, is a very important lesson to learn. While I am in full sympathy with ornamentation of both home and public grounds, and fully endorse the statement made by our president in his opening address yesterday—that we must see to it that every school yard in the State is ornamented—yet I am inclined to go farther and combine with the beautiful the useful. This, in my opinion, may be done by adding suitable grounds to school houses, and introducing the proper system of training. Especially may this be done in country schools where space is plenty, and the purchase of a few acres of land would richly reward you.

In connection with this permit me to mention some facts concerning the present high school education, especially for girls. While this properly does not belong to the subject assigned to me, yet I believe it worthy of some attention and reform. While I appreciate, and in

full sympathy with all higher branches of study, yet when thereby the practical and useful is overlooked and neglected, it appears unwise. How often are large sums expended in sending young girls to boarding schools, where they are trained in a channel, so that after they have graduated, they know but little of that which is truly useful to them in actual life.

They have memorized a disconnected collection of algebra, geometry, chemistry, geology, etc., and perhaps are able to read a little French, or locate in a stereotyped way the principal mountains, rivers and lakes; their conversational abilities are well adapted to entertain in their paternal parlors, some soft-minded chap, commonly called a dude, at the expense of their father's wood pile. The next needed accomplishment, is to obtain and read the usual supply of nonsensical novels, and carefully peruse the fashion bazaars, and to don all the appliances vain fashion dictates, although it be at the expense of health and comfort. Nature may have bestowed a beautiful suit of hair, yet it must be banged, colored or otherwise disfigured, and though nature had given them a beautiful face, they must paint themselves another. This is also true of the modern dude. They have likewise been carried along in idleness, by an indulgent father, through a schooling of theories, but of no practical application. Their father, perhaps years ago, came west, and with his own hands cleared up a homestead, or in some other pursuit commenced at the bottom round of the ladder. The young man, however, has never done an honest day's work in his life, and don't expect to. He has been educated beyond that. He has accomplished the art of base ball playing, and acquired an excellent taste for good cigars and kindred commodities, for which he spent his father's money freely, and when this gives out he buys on time. Now because this is true to a great extent, it is no proof that it necessarily should be so. It only clearly demonstrates to me too much indulgence on the part of the parents, and a misdirected education.

In conclusion, concerning the subject of "Ornamentation of the school yards" I shall not undertake at this time to enter into details—how this much needed reform should or may be brought about. I only wish to add, it is within our reach.* It can be done and should be done. Let us therefore hope that the school boards, and the public in general, will give this subject proper thought and attention. By proper management a plan may be devised, connecting the practical with the ornamental, making your school yards attractive, comfortable and useful. Initiating a system of economy, order, industry and cleanliness, thereby creating in the young mind a love and desire for the useful, refined and

beautiful, thereby elevating and attracting them through the mighty works of nature to nature's God.

See to it therefore, that your children, who soon must enter upon the stage of real life and there play a part, receive a wise and useful education. Teach them that labor is not degrading, but elevating. That in this great land of ours, reaching from the Atlantic to the Pacific, from the lakes to the Gulf, embracing all classes of soil and climate, a land capable of producing and supplying all human wants, that there is room for all and millions to come, and that all who will but do their duty, may have a home and plenty. There is no need complaining of hard times while yet millions of rich acres of land are unoccupied and uncultivated. Teach them to plow deep and often, and be sure and plant plenty of Ben Davis apples, and rich will be their reward, for the Lord helps him who helps himself.

Teach them to love home and country, and that the greatest blessing to mankind is to have a cheerful and pleasant home. In short, teach them to use common sense, and to live after nature and nature's laws, which are unerring and wiser than all, and it needs not a prophet's foresight to foretell that their fireside will be cheerful and happy, and their lives spent usefully. And when the evening of life has come, and the dark curtain of death closes your life's last scene, it will be with the knowledge and satisfaction that you have done your duty and the world has been made better by your life in it, and you will continue to live and be cherished in memory long after your ashes are mingled with the clay.

DISCUSSION.

Mr. Murry—We adopted the plan last year of meeting on arbor day and encouraging the young people to bring a tree and plant it. We have our grounds full of trees. Last year being dry, some of them perished. I think our school grounds should be enlarged with a view to the growing of flowers and other plants while lands are cheap and accessible. The young should be brought up among trees, flowers and everything beautiful.

Mr. President—This society has set on foot the ornamentation of school grounds. Mr. Kern, the landscape gardener took upon himself the laying out of the work and directing how it should be done at Warrensburg, and the nursery men of Missouri, Iowa and Kansas contributed trees and plants so freely that we could not accept them all. Our local society ornamented their grounds last spring. I think it would be well if this society would adopt some resolution asking our

State Superintendent of Schools to use his influence with the legislature to get them to pass a law giving us a little appropriation for the purpose of improving our school grounds, and to make a law requiring the school board to have some ground for the cultivation of flowers and fruits.

Mr. Goodman—It is a part of our plan for the State Society to take the lead in the matter. We expect to have a day set apart by the State Superintendent for tree planting next spring. We can lead in the work, tell the school boards what to do and how to do it.

Mr. Speer—Our society has done something like that mentioned by Mr. Murry. The arbor day appointed by the State was entirely too late, and the trees did very poorly. We will have to do a great deal of the work over. I think there is no school district in the State of Missouri that can not ornament its grounds if there is just one man in that district who will make up his mind that it shall be done. It will be worth, as an advertisement, to any nurseryman all that it will cost him to furnish the trees to ornament the school grounds of this country.

WHAT THE STATE OWES TO HORTICULTURE.

BY L. CHUBBUCK, OF COLMAN'S RURAL WORLD, ST LOUIS.

I would that I were able to rise equal to the occasion and tell to this meeting of intelligent and experienced horticulturists, to you gentlemen who have labored through the heat and the burden of the day and made the great State of Missouri, a name and a fame known throughout the land, what the commonwealth owes to the industry in which you are engaged and of which you are indeed the bright and shining lights. But I will confess to you at the start, that though I consented to read you a paper at this time on this subject, when I settled down to the task I found such an abundance of material to draw from, that the problem was when to begin and which of its many phases I should select to present to you.

The subject is one worthy to be handled by the brightest and deepest thinker of the State, and no man, however exalted he may be, either by native genius or in the estimation of his fellow-men, need be ashamed to attempt its analysis or solution; for it involves the material interests of nearly 300,000 farmers and producers, and indirectly the progress, the well being and the development of the entire State. It is a subject that our legislature has never had fairly presented to it, and for the reason I suppose, that those who were capable of handling and of presenting it were more concerned in the political issues of the day, and their time and attention more occupied with lobbyists of the railroad interests and in those great corporations, to be able to think of a matter so small as the horticultural or for that matter the agricultural interests of the people of one of the leading States in the Union.

I very much question if the great majority of the members ever thought for a moment that the State owed anything to horticulturists or to any other one branch of agriculture. The lobbies at Jefferson City were never haunted by the farmers, the legislature never pestered all through the session with a dozen or more farmer lobbyists with an axe to grind, even though it were in the interests of the whole people in place of a single firm or corporation, or a single city or railroad. They never had to say we will grant their request lest they wrong us with much importunity; and this is one reason why they never knew what they owed to the horticulturists of the State. It is patent to you gentlemen, that when the legislature meets next month the lobbyists will very soon take the measure of every member, will watch their movements, dog their footsteps, familiarize themselves with the peculiarities of each and will very soon learn how to approach them as to gain their confidence and win their favor. Then they will gradually and cunningly open the subject of their desire and when the proper time comes will crowd it for all it is worth. The farmers I say, do not do this, they are not sufficiently compacted and drilled as to act together, and in solid phalanx move upon the enemys works; hence, their wants are never told, their voices never heard and the greatest interests of the commonwealth are lost sight of and absolutely neglected.

Nor do I suppose that this thing is subject to speedy remedy, and perhaps never will be until an occasion shall arise of some extraordinary character, that shall so arouse the community as to compel from sheer force of circumstances an acknowledgment of the justness of our cause, and the immediate necessity of a remedy.

What means have we at our command that may be utilized to bring about this state of affairs? If we look about us we will find that we have more than, without thinking, we dream of. The farmers of this State if they will, can interest in this matter that great and popular body, the patrons of husbandry, a body of men loyal to the cause of horticulture. As to agriculture, whose every interest is identified with any and every thing this society can properly undertake, and be counted on to co-operate with you in it. You have too that important and influential body known as the State Board of Agriculture, who ought to and doubtless would be willing, not alone to assist you in formulating your claims upon the State, but as well to use all the power of their influence in urging action thereupon. Indeed the Rural World has time and again urged that to that body legitimately belonged the prerogative of considering the agricultural necessities of the State in all possible particulars, of preparing laws necessary to their observance and performance and then entreat the legislature to pass the same for the relief of this great industry. Then you have the press, not exactly at your command but ever responsive to your call, whenever that call is properly made, to support your claims and to present them for consideration and adoption. It is just possible that you have not utilized this power for good, this all-pervading and all-controlling influence, as you might have done. In every county you will find two or three papers supported by the farmers and measurably responsive to their call. Hence, with patrons of husbandry in every county, farmers and horticulturists in every county, newspapers in every county, and the State Board a standing committee at large, the Missouri State Horticultural Society ought to be able to so influence a majority of the members of the legislature as to carry any proper and legitimate claim it may have to press upon its attention.

Some of you gentlemen present will say this is a very fair scheme, but is it practicable? Who have we to undertake the work, where are the necessary funds to come from and how, generally, are we to go about it? The plan is feasible and the work comparatively easy if systematized and undertaken in a business way. Appoint a committee of your own body to visit the State Board of Agriculture, and then invite to your councils representatives of the press and of the legislature, and give to that body full power to act in such matters as concern the interests of horticulture before the legislature, with a view to obtaining the relief which the necessities of the occasion and the times require. Is there anything impossible in that? There is most certainly no im-

propriety in making the effort, and as "never venture never have," so "to him that asketh shall be given."

It may be asked: What are the claims of horticulture to aid from the State? Why should men engaged in fruit growing or in producing any article by selling which the producer receives benefit, expect the State, by taxation, to assist him in building up his business? If the aid asked of the State was to result in good only to those engaged in horticulture there might be more reason in asking the question, but will the good done be so restricted? Who is not interested in and benefited by horticulture? Of all the industrial pursuits none is more far-reaching and beneficial in its influence than is this, and to deprive the world of its effects would be a speedy means of reducing the human race to barbarism. Nothing has caused the poet and bard to sing, or the painter to use his brush so often as have the woods and fields, bright flowers and sweet fruits. Where will the most innocence and happiness be found but in the midst of those things which it is the horticulturist's calling to produce?

The members of this society are interested, not simply in increasing their own business and financial good, but to induce others to embark in a profitable undertaking. Our State, being so well adapted by soil, climate and geographical position, offers to her citizens a profitable field of labor in this direction, if only they can be awakened to the merits of the case. There are thousand of acres of land now comparatively useless which, if devoted to fruit raising, would increase the revenues of the State millions of dollars. There are thousands of homes around which is seen but little, if any, trace of those things which a knowledge of and love for horticulture will cause to exist; cheerless are these homes where not so much as a tree or vine aids in beating back the hot rays of the summer's sun, or the piercing blasts of winter's storm. Not a flower relieves, with its beauty and fragrance, the untidy surrounding of the yard in summer or adds a ray of cheerfulness to the ill-kept house within when the winter has come. Could this society, by its efforts and influences, cause these so-called homes to be surrounded with a neat lawn set with a few shrubs and trees and a few simple flowers? Is there anyone present who would say that the good resulting would not be worth to the State many times the largest sum of money the most enthusiastic horticulturist would ask from the public funds? Estimate, if you can, the value of the refining and civilizing influence on the children of these homes if their rude and uncouth daily, hourly surroundings could be replaced with those products of horticulture which delight the eye and make glad the heart. It is not

too much to say that every successful effort on the part of horticulturists to improve, from their stand point, the homes and surroundings of our citizens will do more to suppress crime than twice the same effort put forth by the police powers of the State. No one questions the duty of the State to do all it can to restrain criminals. Does anyone question the duty of that same power to do what it can to prevent the making of them? And that it is her duty to do this by the most efficient means?

Our State Superintendent of Public Schools is made *ex officio* member of the State Board of Agriculture. Should he not also be recognized by the law of the State as *ex officio* member of the State Horticultural Society? And with the position as member of the two bodies ought not there be duties to perform and means provided for their performance? How much of the educational advantages of the State are for the benefit of the children of farmers as such, that is to fit them especially for the business of farming, that which the great proportion of them will follow in after life? The decided tendencies of our educational system is to fit the youth of the land, including farmer's children, for some other business than farming, to educate them away from the farm. This, the great foundation industry of the world, is left to gain its recruits from these who are forced by circumstances to follow the calling. Nothing is done by the State to put the children of the common country schools in possession of the multitude of wonderful facts that make up the science of agriculture; such facts as relate to insect, plant and animal life, character of soils and processes of fertilization and exhaustion, farm economies and a thousand other things which, when the mind has become interested in them, prove more interesting and instructive than can be found anywhere else in the realm of nature, and which, if they were in possession of the farmers of our State, it would be worth a hundred fold more than it would cost to impart them.

Why cannot our State Board of Agriculture devise a plan by which it, in connection with the School Superintendent, can cause such information to be taught in our schools? Why cannot the Horticultural Society also work with the school authorities and inaugurate methods of teaching which will not only be of inestimable service to the State from an economic standpoint, but also be the means of elevating and refining all our people? Suppose the Society had at its command funds with which it could employ a qualified landscape gardener and horticulturist to visit our schools and impart to the teachers as well as pupils, the elements of the art of beautifying their school

grounds. If the children were thus interested in the beautiful in nature, how soon would it be before the good would be made manifest in and around the homes of the neighborhood? We do not realize to what extent fathers and mothers are influenced by the ideas which have been impressed on the plastic minds of their children.

But it is not only æsthetic good which the State should foster by giving its support to horticulture. Indeed, we fear that unless our legislators can be shown that there is material good—good which can be estimated in dollars and cents—to come from money set apart for the use of this Society, but little will be forthcoming.

What are some of the directions in which this organization could be useful if it had the means? We must be content with stating but few of them, believing that the intelligence of this audience will appreciate their importance and will not be confined to the few suggestions here given.

It has been estimated that the yearly loss in this State alone from insect depredations is upwards of \$60,000,000. Is not here a field of labor and investigation to learn the habits of and devise means of overcoming these enemies? Why is not this Society able to employ an entomologist to serve by his labors, not horticulturists alone, but the whole State? Missouri once had an entomologist in the person of Prof. C. V. Riley, whose services as such will be valued as long as the art and science of agriculture exists. Yet a short sighted policy caused his loss to our State, although he was transferred to a wider sphere of usefulness by being appointed United States Entomologist. This Society should have the means at its disposal to employ an entomologist, whose duty it should be to study the nature of injurious and beneficial insects, and to keep the farmers and horticulturists who have not the time for the study, informed as to the best means of preventing their ravages.

There are the hosts of parasitic fungi to investigate, which there is such pressing necessity. As yet but little is known of their nature, yet think of the millions of loss yearly by rust and smut in grain; rot and mildew in fruits, blight and decay everywhere in the vegetable world, caused by this class of plants. Would it not pay the State to employ some one to labor in this field?

Then the knowledge of the nature and habits of our birds needs to be better known by the agricultural classes, so that beneficial ones may be protected and others destroyed.

Thus we might go on to enumerate ways in which this Society might be made of incalculable value to the State, if it only had means

at its command. It is work, too, which cannot be done by individuals who are engaged in the practical business of fruit growing or gardening, yet when the work is done and the information gathered and properly disseminated, it can be utilized by all.

But here we have been pointing out work which would keep a number employed all the time, when our Society has not the means to half pay its Secretary. Much unpaid labor and time does he now give to the cause which he loves, when he should be paid a salary in return for his entire time. Could his time be wholly devoted to the horticultural interests of the State, he could do much more efficient work. He should be able to visit local societies and give them aid and encouragement; to organize societies where none exist; to get up full monthly crop reports; to perfect methods of transportation of and marketing fruits; to offer premiums to local societies for displays and collections of horticultural products, and get up displays of the same at State and National exhibitions, which would tell to the world what a grand horticultural State Missouri is.

What sum of money is needed by the Horticultural Society to perform this work, a portion only of which has been suggested? If \$10,000 were set apart by the State for the exclusive benefit of the horticultural interests it would return \$500,000 to the State's wealth. Suppose \$5,000 were offered by the Society in premiums to the various counties in the State for displays of fruits, and these fruits exhibited where the people from all over this and other countries could see the magnificent collection, and ten men worth, on an average, \$5,000 each, were induced to settle in our midst.

Thus would \$50,000 be added at once to the wealth of the State and she receive at the same time additions to the best class of citizens she possesses, and who would from that time on add to the State's revenues. Moreover the effort put forth by those competing for the premiums would result in an increased and improved product to the value far exceeding the amount expended. Suppose the State society had a few thousand dollars to expend on experimental fruit farms in different sections of the State, where authoritative and exhaustive tests of the value of different fruits could be made. How many thousands it would save by showing what varieties should and what should not be planted. Then with the secretary paid not less than \$1,200 per year, a botanist to be paid \$1,000, and an entomologist \$1,000, it is easy to see that \$10,000 is hardly adequate to the needs of the case.

It may be said that this sum is more than the people of the State

can afford to be taxed for. Let us see ; there are in Missouri about 300,000 farmers ; suppose they were taxed ten cents each for the cause of agriculture. There would be \$30,000, \$10,000 for the use of the Agricultural College, \$10,000 for the State Board of Agriculture and \$10,000 for the State Horticultural Society. Is it too great a burden when the sum is to be raised by taxing all the property ?

Thus I have, gentlemen, presented to you, in a paper too lengthy, yet in a hasty and imperfect manner, some of the claims of the industry you represent, upon the State for support and encouragement, and have offered a suggestion how the justness of these claims can be brought to the attention of our legislature, and a consideration given and relief offered. Act upon this suggestion as in your good judgment you think best. Let me simply state, that what ever Colman's Rural World can do to further the praiseworthy efforts of this society shall be done ; and all it asks of you, that it may thus labor in your behalf, is your countenance and support.

Mr. Ragan.—There is one thing that struck me in the paper of which I would like to say a few words, and that is the suggestion to have a landscape gardener visit the school grounds to suggest what to plant and how to plant it. How many have the knowledge to plant a clump of trees, a border, or a fringe or a bed of plants ? The landscape gardener will look over the ground and help us to do all these things.

Mr. Follett.—My story will come in here as an argument. I was musing upon the great motives of human action. We are engaged in a work of love. It will influence the laborer to love his country and educate his children better. The paper suggests that if some of the money raised by taxation be spent in promoting agriculture and horticulture, it would be of much more benefit to the country than if spent in augmenting its "poor" bill, because of the love of country and the enlightenment it would cause. The story of the *Enchanted Harp* came to me and I will repeat it if I can.

Poem recited not reported.

THURSDAY, 9 A. M.

Meeting called to order by the President.

REPORT OF THE COMMITTEE ON VEGETABLES.

BY PROF. L. R. TAFT, AGRICULTURAL COLLEGE, COLUMBIA.

The early part of the past season was favorable for the production of vegetables. Sun followed shower in just the right proportion, and the supply of early vegetables was all that could be desired. The drouth of July and August cut short the late supply, and gave a bad ending to a season which opened under the most favorable auspices.

At the Warrensburg meeting I submitted, in brief, the results of my vegetable experience during the year 1885, giving a list of the varieties which seemed most worthy of cultivation. The past year I continued the trial and added such novelties as seemed most desirable. In addition to the varieties of peas given last year the Alaska and Cleveland's Rural New Yorker (from the originator), Thorburn and others were tried. The Alaska filled its first pods about a week in advance of the ordinary extra early varieties. The foliage is distinct, and in productiveness it stood well at the head of the early kinds. The Rural New Yorker was almost as productive, and ripened about with Philadelphia Extra Early.

Bliss Abundance and Horsford's Market Garden follow the American Wonder in ripening, and proved extremely productive. They branch just above the ground, forming from three to six distinct vines, and although the seeds were planted six inches apart they were, if any thing, too thick. From one seed as many as three hundred were produced, while ten average plants bore four hundred and ten pods, which contained over sixteen hundred peas.

The Imperial Valentine Bean proved to be a week earlier than Early Valentine and equally productive.

The Egyptian Beet, as obtained from Gregory, was greatly improved over the old Egyptian; equally early, it had taken on a more

circular form and improved in color. The Eclipse, too, has changed since its first introduction, and still holds its rank as the best early beet.

The Cory Sweet Corn was again first in ripening, and this, together with its size, would warrant its general use as an early variety.

Although the year was very unfavorable for celery, very satisfactory results were obtained from a portion of the plants. Five hundred strong plants of Crawford's Half Dwarf were transplanted into an empty cold frame about the first of August. They were placed in rows six inches apart with one foot between the rows. So long as the dry spell lasted they were watered.

As cool weather came on the plants made a rapid growth, and, without handling, the plants took on a good form, and the understalks were well blanched. The plants did not sucker, and from a single bud many plants reached a diameter of four inches.

Of the large number of other vegetables grown the list given last year need not be changed.

The setting out of asparagus and pie plant roots should be attended to by every householder. Without much care they will supply a large quantity of vegetable food at a time when little green food is at hand. If properly looked after the beds will last for a long period of years.

GROWING VEGETABLES.

BY J. N. MENIFEE, OREGON.

Anything that materially affects our supply of food at once becomes an interesting subject. Vegetables are about as much a necessity in the kitchen as the cook. No amount of meats, fruits or luxuries can take the place of vegetables. Let the potato rot, cut short the crop, or the worms destroy the cabbage, and what a cry is raised.

Now, if this branch of horticulture be of so much importance, may I not ask your indulgence while I name a few of the conditions of success or failure in growing vegetables. The object of the writer is not to instruct the professional gardner who grows vegetables for city market, where early vegetables are forced by the use of green houses, hot beds, cold frames, screens, etc., but for the more common class, who realize the necessity for vegetables, but use so little intelligence in growing them. There are two methods of growing vegetables, by one we are liable to fail, by the other we are almost sure to fail. One way, and a very common way, too, is to plow a square plat of ground in early spring and plant the seeds, that have been begged of neighbors, in raised beds and high ridges, that are liable to wash away with the first heavy rain, or be lost in weeds; being planted in such poor shape that a hoe is the only tool that can be used, and it is often so dull and rusty that a few rounds and the poor man, in despair, concludes he is too busy to hoe such a patch, but his heroic wife comes to the rescue; but after a long and painful struggle finds her strength inadequate for the task, and consequently surrenders to the weeds, which, like bad habits, must be conquered as soon as they appear, or the task is almost hopeless.

The other method is to select a rich well drained piece of land, plow it deep about the first of September that it may have the benefit of the fall rains. If not naturally rich, fertilize it. Be careful in the selection of seeds, the best seeds are always the cheapest, although the market value may seem high. Pack seeds away from frost and mice. Plant a few onion, radish and lettuce seeds quite late in the fall. In early spring, as soon as the ground will work well, harrow until free of clods; then plant the precious seeds in long straight rows, giving room to cultivate by horse power.

We should not be content with what vegetables are necessary for our tables, but plant for the market, for our horses, cows, sheep, pigs and poultry, for they are all fond of them, or can be trained to like them much easier than our boys are trained to like the taste and use of tobacco; the vegetables serve as a nutriment, and are valuable to all as a variety in food; tobacco is injurious to body, mind, morals and etiquette. Among the most profitable vegetable crops for stock are the mangel wurtzels, sugar beet, rutabagas, carrots, cow peas and squashes. Forty to sixty tons of mangels and rutabagas can be grown on an acre with very little labor. If close attention is given while plants are starting the crop is almost a certainty, wet or dry, and are

easily stored in pits and will keep nicely all winter. Squashes flourish in slightly shady situations where other crops would fail.

Old orchards can be renewed and greatly benefited by growing squashes in them. My neighbor gathered 1,600 pounds of Chili squashes from two vines in an orchard.

Melons may be planted in the newly set strawberry field and cultivated until the vines interfere, after which the melon vines will keep down the weeds and screen the berry plants in hot dry weather, and the melons will be about equal in value to a berry crop. Early potatoes may be gathered in time for a crop of mangels or rutabagas—good tools kept sharp, the steel polished and the wood painted saves the horticulturist much labor. The Iron Age Cultivator and Celery Hoe are recommended by good authority as excellent tools.

Each horticulturist has his preference as to the best varieties. I would consider the list of seeds incompetent that didn't include American Wonder, Stratagem and Champion of England Peas; Black Wax and Valentine for bush and Southern Prolific and Dreers Improved Lima for pole bean; Ey. J. Wakefield, Hendersons Summer and Burpees Surehead Cabbage; St. Joe and Hanson Lettuce; Livingstons Perfection Tomato; Egyptian and Eclipse Beets; American Champion and Iron Clad Water Melon; Hackensack and Surprise Musk Melon; White Plume Celery; Lee's Favorite, Ey. Ohio, Almo and O. K. Mammoth Potatoes, and Essex Hybrid Squash. In conclusion, to be successful in growing vegetables or anything else, it is necessary to gather information by inquiry, by observation, but above all by thinking for yourself; not forgetting that most of the practical knowledge we may have, has been contributed by others, and therefore stand in readiness to give it again to others, as it is more blessed to give than to receive.

Mr. Murry—I grow vegetables for home use and sometimes a few for market. I have been growing celery and find it a fine crop to grow in a young orchard. If the celery is well cultivated the trees will grow better than if left alone on account of the deep plowing we have to give for the celery. The ground is also left in good condition for any crop next year. The taste for celery is to be acquired. It is nutritious and a nerve feeder. It is very profitable. I grew 1,200 dozen this year

notwithstanding the drouth. One day the thermometer stood 112 degrees in the shade. That day we lost several thousand plants. I find that Golden Heart dwarf is the best to stand the heat, the cold and the drouth. I get the same price in St. Joe as the Kalamazoo celery, which, as you know has the highest reputation. It makes, with careful cultivation from 150 to 300 dozen per acre. We plant our seed beds just as soon as the ground can be worked in the spring. Plant like tobacco seed and firm the earth on the seed, as the celery seed, is very small; shade the bed with light brush or lath. We put the plants out in the middle or latter half of June, sometimes in July. The growth that makes the celery we eat is made late in the fall after the late rains. From the 15th to the 20th of October is the time we usually take in the crop. For keeping we place it in a trench just the depth of the celery's length. We cover, with an open space above the celery, and leave an opening to the air above, every two or three rods. If any one wishes to engage in market gardening I would advise him to get Peter Henderson's Gardening for profit, a book that has been worth \$500 to me.

REPORT OF COMMITTEE ON NOMENCLATURE.

T. W. GAUNT, MARYVILLE.

Your Committee on Nomenclature has observed that parties who are introducing new varieties of fruits are naming them one name, which is in conformity to the recommendation of the Hon. Marshall P. Wilder.

The name of each new fruit should consist of one word, easy of pronunciation. We feel assured that all the pomologists of Missouri will approve of but one name for all new fruits. Long names are always objectionable. We would recommend, that all new fruits which are not esteemed valuable and worthy of general culture, be passed and considered worthless, and that all new fruits be thoroughly tested

by the originator, as to its worthiness for general culture before its introduction for public favor, and that a full description of the fruit should accompany each new variety placed on exhibition, also a descriptive habit of the tree.

Very respectfully,

T. W. GAUNT.

REPORT BY A. AMBROSE, NEVADA.

Mr. President—Your Committee on Nomenclature have looked over the selection of seedling apples now on the table and recommend the following names:

HOWELL.—Originated in Howell county; first premium.

OZARK.—Second premium.

HOPEWELL.—Third premium.

BABBIT.—Originated in Illinois; introduced by W. R. Laughlin of Holt county; long keeper.

A SEEDLING.—Introduced by Mr. Holman of Springfield; originated in Texas county; large, yellow, resembles Shannon Pippin.

PARIS.—Originated in Monroe county; introduced by A. Ambrose; apple large and good.

REPORT OF COMMITTEE ON NEW FRUITS.

F. LIONBERGER, NEW FLORENCE.

Mr. President, Ladies and Gentlemen:

As a member of the Committee on New Fruits I beg leave to make the following report, which is based upon my experiments made

during the past summer and upon observations such as have attracted my attention during the past season in other places:

Of the apples I find that a very large number of different kinds of seedlings can be found in this and Warren county. The first settlements in Missouri have been made in this county, and I learn that the early settlers in Daniel Boone's life time had planted out a great many seedling orchards from seeds brought from the east. Of course a great many worthless varieties were procured, but also some that were fine and of good quality. From the best of these original seedlings sprouts were afterwards taken and other orchards were set out until now only the best of them are left. Of these not less than fifteen varieties have been brought to my notice. I am now testing a large number of these sorts in my orchard, and there are yet a great many more, of which I intend to procure a few scions.

The Logans Late is one that I am watching very closely and I think that it will prove to be quite valuable. The Logan, the only bearing tree of this sort, is the original one which was planted in 1806, has a very fine crop of apples again this year. All the fault I find with it is its earliness.

The Lucy Pew bore its first crop in my orchard this summer and I find it to be a fine large apple of the best quality. It is an excellent apple for evaporating or for local market, but do not think that it could stand shipping.

Of pears the newest varieties I have got are Keiffer and LeConte, neither one of them have fruited for me yet, but are making very fine growth. Have not noticed any blight in them yet though I have seen the Keiffer blight at another place. Some Keiffer pears that were grown by S. Miller of this county, I have found to be fine and attractive, and as to quality just good enough for any body, though not equal to Bartletts. The Cockling is a pear that I am quite favorably impressed with. It is somewhat earlier than Keiffer. The trees on our grounds, as well as the ones I saw at Judge Miller's, seem to be very hardy and very handsome, but how the trees will do when they get older I am not prepared to say.

Of Plums—The only new plums we get is the Marianna; but as one of my associates has a more extensive experience with this fruit than I have, I will leave it to him to report upon. The Newman seems to be a plum that is a great deal thought of by the fruit growers of St. Louis county: but I know but little about it myself.

Of Peaches and Cherries—I am not prepared to report any of the newer sorts.

Quinces.—I only have Rea's, Champion, and Orange, but fail to see any material difference in them.

Strawberries.—The newest sorts I have are Jersey Queen, Daisy, Manchester, J. Vick, Crescent, and a few others. I also used to have Big Bob, but have discarded it. Jersey Queen with me is a fine berry, but does not fill boxes fast enough. Daisy is not a *Daisy* with me. James Vick, however, I like fine, though if the ground is not rich and the culture not complete, the fruit will not average large enough, at least such is my experience. Manchester does only tolerable with me. Crescents I have but few, and could not express my opinion as to my own experience. Last summer, however, I saw a bed of them at Montgomery City that were killed outright by the drought, while other sorts on either side, such as Monarch, Bidwell, Longfellow, etc., were not hurt at all. My best and most profitable sorts are Cumberland, Piper and C. Jack. Crystal City is quite profitable with me, because it is early.

The newer Raspberries I have are Crimson Beauty, Lost Rubies, Scarlet Gem, Stayman's No. 2, and a few others; but neither of them come up to Turner and Cuthbert, and will therefore be discarded. Shaffer and Gregg are my best black ones.

Respectfully submitted,

F. LIONBERGER.

REPORT FROM NORTHWEST MISSOURI.

We wish to call the attention of the meeting to a new Apple, exhibited by Mr. Murry at the Kansas City Fair last fall, under the name of "Western Baldwin." At that exhibition it attracted considerable attention from such of our best fruit men as saw it then.

Tree a very strong, large grower; shoots large; leaves very large. As a support for a heavy crop of apples, it is, mechanically, the most perfect tree we have seen. Wood, hard and tough. No apple tree has stood the hard winters of the last ten years any better.

Fruit large—nearly as large as Ben Davis. Quality much like the New England Baldwin, of which it is a seedling; keeps well till April; color nearly red.

A good bearer.—A tree from a graft taken from the original tree bore six bushels when seven years old from the graft. It originated over forty years ago, and is now well tested—tree and fruit—in three States.

We claim for this apple—and ask the Society to allow it—the name *Babbit*—of the man who first propagated it.

Also, the “Woodmansee.” Tree a vigorous grower, and has proved perfectly hardy in Southern Iowa since its origination eighteen years ago.

Fruit medium size, striped with red; of very superior quality and keeps well till May. A very abundant bearer.

W. R. LAUGHLIN,
N. F. MURRY.

ELM GROVE, Holt county, Mo.

FRUITS, NEW AND OTHERWISE.

BY W. P. STARK, LOUISIANA, MO.

Jewell strawberry is a strong grower, but doesn't produce many plants. Berries admirable in every respect, except lacking in flavor. For our own use, nothing has yet superceded Cumberland.

Marlboro is an early red raspberry of large size, beautiful color and good quality. Plants were uninjured last winter. Superb crumbles, and is of poor flavor: scarcely worth growing.

Shaffer's is a strong grower and good bearer of large purplish berries, but too acid and harsh in flavor; still, it is very generally liked.

Of the black raspberries we have tested, the Ohio is easily chief. Souhegan is a good variety, and very early. Earhart, we have had growing for a number of years, having received plants from Illinois be-

fore it was named and introduced. It bears a good autumnal crop, and is desirable for the amateur. Indiana, a new berry, not yet much disseminated, is very promising.

Wachussett Thornless Blackberry is said to be a fine fruit on strong soil; ours are not on such, still it is strong enough to produce entirely too many thorns. True, the canes are comparatively thornless, but the leaves are not so.

Early Harvest, though badly injured in the hard winters, has usually escaped with enough canes to bear some good, very early berries. Lucretia Dewberry is promising. Mammoth is being tested. Bartle's is worthless.

Downing Gooseberry though a fine fruit is not productive, at least not till after some years. Industry will be tested further.

Fay's Prolific Currant we value highly, after having fruited it four seasons.

Moore's Early is a good, hardy and productive early grape, always ripe and gone by time Concord comes in.

Worden surely is a grape of better quality than Concord.

Duchess, Prentiss and Jefferson, six years planted, have never produced a grape. Lady Washington, Amber and Pearl, of same age, have borne four crops. Brighton is excellent, does better when the vines are dropped to the ground in winter and good cultivation is given.

Downing Mulberry we first fruited some six or eight years ago; entirely hardy in North east Missouri. Bears while very young, one year trees in nursery rows often being full of blossoms, and sometimes maturing fruit. Valuable for general culture. The Russian will do to plant for the birds.

Nut trees being largely planted just now, makes it pertinent to recommend the Japan Giant Chestnut and the Dwarf English Walnut (*Praeparturiens*). The Chestnut is a larger and far better nut than the tender Italian or Spanish, and, withal, bears while very young.

The Walnut also bears when very small, matures its growth well and is hardy.

Champion Quince trees planted six years ago have several times been badly damaged by cold winters and of twenty-five trees not one has ever shown a blossom.

Rea's Mammoth of same age, bore a fine crop of excellent fruit at three years old. This variety is hardier than Orange and is, perhaps, unexcelled, though Meech and Missouri Mammoth, neither yet fruited, are clamorous for first place.

Though by no means a new apple, there is nothing better of its season than Benoni, either for market or table use. Of higher quality than other sorts of equal earliness. Tree hardy and productive, but a moderate grower. There are other apples equally well known, such as Chenango Strawberry, Lowell, Grimes Golden and Vandevere that are so good, it is hard to refrain from saying a word in their praise at every opportunity, fitting or otherwise.

Alexander has produced some showy specimens of quite fair quality. Wolf River, of the same class, not yet fruited. Tree is hardy and a strong grower in the nursery when budded; not nearly so strong when grafted. Mann has borne a few specimens, showing it to be a fine acid apple of much larger size than we had expected, judging from the plates sent out—an agreeable surprise, that, in the case of most new fruits, has not yet become common.

Stark is one of the best annual bearers, fully equal to Grimes Golden in this respect.

Clayton bore a heavy crop on top-worked trees and promises well. The tree is not noticeable in nursery, because of producing comparatively few roots. In this connection, will say that we have been led to believe that many orchards, particularly Ben. Davis, are injured in dry seasons because of rooting too shallow.

In ordinary root graft, the scion generally throws out roots above the splice, but scarcely ever any strong, healthy ones; when the graft happens to be made on the top cut, or collar, no top roots at all result, and the trees will inevitably suffer from drouth, heat and cold, lacking the support which deeply penetrating roots alone afford, and, as a consequence, will be short lived.

Budded trees on strong stocks seem to offer a remedy. In their absence we should choose trees grafted on whole roots, which are very expensive to make, plant and dig, or, lastly, grafts made on the second and third cuts rather than on the first.

Black Twig is a new apple not yet fruited. Specimens received from the South resemble Wine Sap, but in flavor are much preferable. However, it is only fair to say the Wine Sap is not a favorite, the flavor, pleasing at first, soon becoming distasteful.

In nursery, Black Twig is a vigorous grower, and so far, perfectly hardy.

Edwards Transparent is a local apple, resembling Maiden Blush in color and Lowell in form; of larger size than either, fair quality, ripens just before Maiden Blush, about with Lowell; a vigorous grower, productive, and promises to be hardier in nursery than Maiden Blush.

Red Bietigheimer fruited for the first time; ripe early in August; large and showy; but in Missouri, we are accustomed at that season, to better apples. Lady Henniker, a new apple, is evidently not an early bearer since top-grafts, in bearing trees have shown no disposition to fruit, while Red Bietigheimer and other sorts are bearing under same conditions. It is more difficult to propagate from root-grafts than any variety we have ever grown. Illinois Imperial is a most promising new apple from Adams county, Illinois; it is a fine tree both in nursery and orchards, and a good bearer of remarkable beautiful apples, above medium in size, and of most excellent quality. Flesh, creamy white, fine, tender, subacid, with a peculiar and delightful perfume. Has true "all-summer," or perhaps everbearing characteristics; showing apples in the various stages of growth from the tiniest green, to the fully ripe fruit, with clear waxen yellow skin, shaded and splashed with bright red, and delicately striped and pencilled with dark red over almost the entire surface. Begins ripening the last of July, and continues three months.

Larimore, introduced by Messrs. Bagby & Son, New Haven, Mo., is also decidedly an "all-summer" variety; a seedling found on the road side where some Kentuckians had camped; planted in Mr. Larimore's garden in 1820; the original tree is still healthy and vigorous; a good grower, hardy, and bears annually; begins ripening first week in July; main crop ripe in August; large, dark red, good.

The September and October apples are much larger than the July crop. Mr. B. says, the children and the birds are very fond of it, and that on May 1, he found apples under a straw pile, that he remembered placing there in October previous, sound and in good condition though, "a little mealy."

Shackleford, not yet fruited: specimens received, very like Ben Davis, but appreciably better in quality; tree a very dwarfish grower in nursery; about like Wythe.

Spencer is an apple found in the oldest orchards in Howard county, this State, where it is much esteemed. Mr. Kingsbury, a leading orchardist, says: It has outlived all other trees; have never known it to fail to bear and generally very full too; a slow grower, (one of the slowest growers we found it), but very hardy; blooms unusually late; medium to large, bright red, ready for market latter part of August, and brings the highest prices; fills a vacaney, and in its season popular, as Jonathan is later.

Stuart's Golden, a winter apple of best-quality from Ohio, and Sutton Beauty from Mass., recommended as superior to Hubbardston,

not yet fruited. The Hubbardston by the way, though ripening here in early winter bears a heavy crop of the largest and most perfect fruit, and is in every respect an admirable apple.

Yellow Transparent is a moderate grower; tree hardy; a good and early bearer; medium size; good quality; ripens before early Harvest. Nurserymen find it in greater demand than any other early apple, and although we have had but few years experience with it, we believe it will continue to grow in favor. Charlotten Thaler, No. 342, also sent out by the department of agriculture, is larger and earlier, but not quite so good in quality; productive, and hangs well on tree.

Osceola is an Indiana apple, which Mr. Avery of Iowa says, is establishing a reputation as their most valuable Iron Clad.

Wealthy, although a fall apple here, should find a place in every family orchard. In August last, while on a visit to Hon. Peter M. Gideon, and the Minnesota State Experimental Orchards, we saw the original Wealthy tree, or rather all there is left of it, for the recent terrible winters have been unsparing, and now, a few straggling and rather discouraged-looking sprouts are all that is left to mark the historic spot where was planted the tiny seed so fraught with great and far-reaching results.

Mr. Gideon has done and is doing grand work for the great northwest, and one that is all too little appreciated. American horticulture well might blush to own that the financial reward she would never bestow upon the originator of the Wealthy, Gideon, Lou, Excelsior, August, Martha, Florence, and other no less rich additions to her treasure house, has been poured out in golden streams by flitting seekers after summer homes, eager to pay thousands, for acres bordering the beautiful Minnetonka.

Among the hundreds of varieties we saw in fruiting, all hardier than the Oldenburg, most were still too immature to test as to quality, while some few, notably the Lou, a beautiful seedling of the Oldenburg were nearly gone.

We already had many of these testing, but were surprised and delighted to see them bearing such abundant crops of most beautiful fruit, in quality from good to very best. Mr. G. also has a successful system of growing peaches: surely, we of Missouri ought not to become discouraged while he succeeds in that bleak region. We shall take pleasure in communicating his plan to all interested.

The Gibb, a fine Hybrid crab originated by Mr. Peffer, of Pewaukee, Wisconsin, is an unusually prolific bearer, which we have fruited a number of years, and like better and better with each recurring season.

Very large, oftentimes two inches in diameter, roundish oblate, skin bright yellow, and flesh even a deeper golden still, fine grained, juicy, mild, subacid, almost sweet: ripens in August here. Sweet Russett is a large and valuable crab, considered the finest summer crab in Richland county, Wisconsin. Winter Golden Sweet is also from Wisconsin, is of large size, flesh fine grained, juicy, rich, sweet, a peculiar condensed sweet, seldom found in any apple, entirely free from astringency. North Star is a fine hardy crab from Minnesota, large as Transcendant and two weeks earlier, of perfect quality for eating from the hand. Tree is only a moderate grower, but hardy and immensely productive. Golden Beauty of Paradise is simply a native crab of unusual size and possessed of all the astringency of its class; a remarkably strong grower, and of iron-clad hardness: where it is desired to double work, to increase hardness, nothing better can be found.

Pears, though so generally decried as of no value for the west, we have continued planting uninterruptedly, and while we have met with discouragements innumerable, have not lacked for an ample home supply of excellent fruit. Early Harvest is a hardy tree, and extremely hardy bears a most beautiful fruit, in quality about equal to a well-ripened turnip. Brickett, to our surprise, bears quite early, of small to medium size, of quite fair quality, mild, pleasant, but without well defined character. The wood of trees that make a late growth is badly discolored after 32 degrees below zero. Has shown no signs of blight thus far. Mt. Vernon we value very highly; a strong grower, very hardy, has never shown any trace of blight, while Bartlett in next row were almost ruined. Does well both as a standard and dwarf, but is not an early bearer, dwarf trees seven years old having borne the first crop the past season. Medium size or above, clear russett, good quality, and in their prime December 1. Jefferson is a strong grower, perfectly hardy, but not fruited sufficiently to decide as to quality. Le Conte is a vigorous grower of about the same degree of hardness in tree as the peach, but harder in blossom. Trees six years old have never shown a blossom, and such branches as were not cut back after the recent severe winters are a mere shell, the heart being entirely rotten. The same with top-grafts on Flemish Beauty, although such fruited the past season; quality about third rate. When cut back, it grows up again as vigorous as the peach, and in this latitude will probably require much the same general treatment; ought not to be planted this far north. Rutter is very promising; almost as strong a grower as the Hybrid sand pears; healthy, hardy, and bears early. Souvenir de Congress is a moderate grower, and far less hardy than Bartlett;

orchard trees six years old are almost destroyed. Fruit grown this season on top grafts was about size of Bartlett: quality hardly so good but with less musky flavor. Alexander Lucas not yet fruited; orchard trees two years planted show it to be a moderate grower, and of average hardiness: said on the best authority to be both good and large, often six inches long and 15 inches in circumference, and to have a high character in Belgium. Garber's Hybrid is an unusually strong and vigorous grower, of great hardiness; not yet fruited; think it to be a tardy bearer. Mikado is another strong grower with decided sand pear characteristics: fruit well nigh worthless. Miller's Victor, or Vicker, was received from Judge S. Miller who says it originated in Chester county, Pa., some 30 years ago, and is one of those good things sometimes left in the dark. It was new to Chas. Downing and others to whom he had sent fruit, but all were highly pleased with it. With Mr. Miller it bears fine crops and is among the very best; large, regular, pyriform, shining yellow, rich, sweet and melting, ripening early in September. We find it to be a very strong grower, resembling Bartlett in color of wood, less upright, but by no means spreading: foliage, dark, glossy. Entirely distinct from Vicar of Winkfield to which the name bears an unfortunate resemblance. The Russian varieties introduced by Prof. Budd, generally have thick firm leaves and will doubtless endure our hot summers. They are hardy of course, and it is to be hoped they will prove worthy. And now we are probably about to strike a rock, nevertheless we shall not give up trying to steer clear. There is one thing we have ascertained beyond a doubt with regard to the Keiffer; it will grow, flourish and produce fruit, be the quality what it may, on soils where other varieties will not even grow; still it appreciates good fair soil; have had it in bearing five seasons, and have grown much really good, and some wretchedly poor fruit; always the latter when left without thinning; It will overbear, and three-fourths of the pears must be taken off: then let the rest hang on late into September, gather, wrap in paper and ripen in the dark. After a few weeks you will have pears that you can eat just like Bartletts, and you cannot help wishing they were Bartlett's.

Cherries of such varieties as Schmidts Bigarreau, Sappington, Ida and Windsor were all badly injured with us in the winters of '84 and '85. The only sweet cherry in which we have faith is the White Western, (for want of the real name), some 20 trees of which are on an old nursery and orchard farm now owned by Messrs. Hassler Bros., of Pike county. The original block of this variety stands without a missing tree. The trees are from 12 to 16 inches in diameter, sound and

perfectly healthy, without any signs of trunk bursting, while other sorts of cherries planted in the same orchard, both Sweets and Dukes, have almost disappeared. It has borne good crops regularly, even after the three last hard winters, of a light colored sweet cherry, much like Gov. Wood. These trees, as were the other varieties for that matter, are all branched low, from ten to fifteen inches above the ground—the true system of training for the west, we think, for both sweet cherries and standard pears.

The Duke class have borne but little fruit for years past, excepting *Reine Hortense*, a cherry of great value. Trees planted nearly twenty-five years ago, though not entirely sound, still bear fine fruit. It is short lived unless in a dry, well drained situation. However, no cherry will long endure any other than a dry location. *Empress Eugenie* is a good grower and moderately hardy. The *Olivet* is vigorous and spreading, with wood of a peculiar growth and very brittle. The true *Olivet* is a Duke, while the varieties we have seen grown under this name at various places east and west is a *Morello*, and consequently not the real *Olivet*. *Dyehouse* has not yet fruited, but it is not *Early Richmond*, neither does it bear any resemblance to the Duke class as claimed by some, the tree being a straighter grower, but as distinct a *Morello* as *Early Richmond*. *Louis Philippe* is the strongest grower of the *Morello* class, hardy but not an early bearer. *Montmorency Ordinaire* is a remarkably prolific, acid cherry for which Messrs. Elwanger & Barry have claimed exemption from attacks of the birds. The latter, however, are too good judges to let it entirely alone after fully ripe. It would speedily stand next to if not ahead of *Early Richmond* were it not that, although a stout, it is a slow grower in the nursery and consequently will not be largely propagated.

Without moralizing at length, will say it is rather too much to expect nurserymen to raise large quantities of the poorer growers of any kind of tree so long as the public are unwilling to pay a tithe of the additional cost of growing better sorts. Therefore while *Richmond* will bring as much money per thousand as the *Montmorency Ordinaire* which costs nearly double as much to grow, the latter will have hard work reaching the place it deserves. The *Large Montmorency* is a better grower and of excellent quality, but not so productive. We have received it from several sources, and all different in growth. The undoubtedly genuine is also the best grower. One variety hardly attained one foot in height at one year. *Northwest*, considered the best of Mr. Weir's seedlings, and said to be six days earlier than *Richmond*, is a fair grower and hardy, but not yet fruited. *Wragg*, named by the

Iowa Horticultural Society, is said to be a good late sour variety. Trees sent us by Mr. Wragg, the originator, resemble Early Richmond, though the fruit is said to be much like English Morello but richer in grape sugar. Lieb, sent out from Northern Illinois, is a strong, very upright grower while young, with slender branches, and as hardy as need be, but unfortunately, while the original tree was said to be productive of good fruit, none of the thousand propagated from it have proved of any value whatever. Ostheim is a moderate grower, somewhat like English Morello, bears early, is very productive, a valuable variety; fruit large, liver colored, juicy and rich. Suda, a local cherry growing in the garden of Mr. Suda, of Louisiana, has for years produced good crops of good, fair, perfect fruit resembling Ostheim; has a great local celebrity, and is worthy of general trial.

Plums may easily be obtained in abundance by simply planting in orchards instead of a few isolated trees. Close planting, the more varieties the better, seems to be a success.

Such sorts as Blackman and Bassett surely ought never to have been disseminated. The Blackman is much like the peach in tree and but little hardier; probably originated from seed of Wild Goose, borne by a tree on peach roots, as we have grown hundreds of such seedlings, almost identical with Blackman. Being most easily propagated, it has been widely distributed, but the trees are practically or entirely barren, hence worthless. Bassett trees six years old produced the past season large quantities of plums about half an inch in diameter, which are also worthless. Older trees have never ripened a plum, while Wild Goose and others in the same rows have borne large annual crops. The De Soto is small, of good quality, but not an early bearer, nor is it productive here. Newman is a Chickasaw of great value that has been much neglected on account of being a scrubby, poor grower while young. Shropshire Damson in central or north Missouri invariably winter kills to the ground when budded on peach roots, while on native plum roots, it is badly injured. It is the tenderest of all the foreign varieties of plums we have tested. Free stone Damson is a selected variety of the common Blue Damson, and like all of the class, a feeble grower while young; soon makes fine, upright trees in orchards, bearing after six or seven years abundant annual crops; quality very rich; stone small, from which it parts perfectly. Forest Rose is a native red plum named and first propagated by the late Wm. Stark. Trees of the original stock have borne good annual crops for many years; equal in size, quality and productiveness to any of the native plums we have seen; does not bear so well on peach roots, nor do we

believe that either *Prunus Americana* or the European species should ever be thus grown. The Chickasaw and New Japanese race will grow for the first few years even more vigorously on peach, but in the orchard are soon overtaken by trees on plum roots, which are hardier, longer lived and more productive. Prairie Flower of same type is from Andrain county where the original tree has long borne good crops of fruit. First brought to attention in 1884, it has since been propagated. Golden Beauty is a straggling grower, but very hardy; does not set much fruit while young; ripens very late. Red Arctic is a hardy, fine growing Chickasaw; bears notably early, and is really wonderful in productiveness; fruit one inch in diameter and when fully ripe of superior flavor, second only to the Damsen for culinary purposes; becomes colored a long time in advance of ripening, and hence is apt to be condemned prematurely. Were we required to produce the most bushels of fruit in the least possible time, should not hesitate a moment to choose this variety for the experiment. Fruit hangs on till frost. Missouri Apricot Plum, a native of Pike county, has borne uncommonly full crops for many years, looking, as the owner says, "like grapes, and hang on so firmly that they must be beaten off with poles." Fruit about one inch in diameter, skin thick, golden yellow, flesh firm and of best quality. Judge Miller, to whom specimens were sent in October last, was well pleased with the fruit. Kelsey Japan, is a very strong grower, inclined to grow until frost, of about the same degree of hardness as W. Goose, the latter, after severe cold, showing even more discoloration of young wood. If it will even remotely approximate, in Missouri, such fruit as we saw it producing in California in summer 1885, it will create a sensation. A box of them on the fruit stands might easily, at a glance, be mistaken for average Missouri Janeton apples. Dull purplish red, on yellow ground, with bloom, flesh firm, greenish yellow, sweetish, lacking character; was ripening in August, about two weeks ahead of Coe's Golden Drop.

The Marianna we have now been growing four years. Fruited it the past season on trees grafted in spring of 1882. After having carefully noted its various characteristics of tree and fruit, we are planting it largely in nursery and orchard. It ripened at least 95 per cent. of the plums set. Trees so young of Wild Goose and most other varieties would have cast their fruit before maturity. Yet our two little Marianna trees ripened 75 or 80 plums each, although they had been cut very closely for buds each season, and were almost surrounded and overshadowed by older trees of Wild Goose, Lombard, DeSoto, Miner and Bassett. The DeSoto trees several years older ripened

about half dozen plums, the first they had borne. The Miner and Bassett, not one.

Size about with Wild Goose, rounded, stem short, scarcely a third as long as that of Wild Goose. In gathering cleaves to the fruit, unless very ripe, skin rather thin, light red, becoming very dark red when quite ripe, flesh firm, juicy and with scarcely a trace of the astringency next to stone so noticeable in Wild Goose. The tree is thought by Mr. Onderdonk, of Texas, to be a hybrid between the Chickasaw and European; a vigorous grower, productive and hardy; is easily propagated from cuttings, and so can be used as a stock for budding. And herein lies the promise of great things for the future of plum, peach and apricot culture. We budded some 50,000 the past season, in peaches, plums, and the new noted varieties of Russian apricots. Although the buds were set at intervals during nearly five months from June till October, it is a rather remarkable fact that repeated examinations have failed to discover even one dead bud. The cuttings were made about seven or eight inches long, and planted late in the fall of 1885 on a variety of soils; did much better on a heavy black, rather stiff, soil, about what our Texas friends would call blackwaxy, than on either sandy or clay loam. On black soil about 80 per cent. grew. Experience has satisfied us they cannot be made firm enough when planted with dibbles, and we now plant in a sloping ditch and pound them tight at the bottom as though they were miniature posts. In fact, a great part of the loss in setting grafts, stocks, cuttings, and even trees, for that matter, results from a failure to make the earth sufficiently firm at the bottom.

A plum stock free from the objections that attach to the use of the St. Julien and the half-hardy, borer-ridden Myrobolean, that is not difficult to work like our native plum seedling, which withal soon falls behind the engrafted stock in the race for growth, and that does not, like the horse plum, require a watchman continually on duty lest the proper season for budding pass ungrasped, certainly meets the proverbial "long-felt want." This the Marianna seems to do very fully and completely. The cuttings are cheap, or soon will be, and are of easy production. The cutting forms an admirable root and is easily worked at any time till frost, perfectly hardy, not subject to borers or diseases, and cannot readily be outgrown, even by the most luxuriant peach.

Budded on Marianna, Wild Goose and Lombard, Golden Beauty and Green Gage, will surprise even themselves, while peach trees budded thereon will find it a congenial union, and, bidding defiance to borers and all the ills peach wood is heir to, will be prepared to move

several degrees further towards the northern pole. Chas. Downing says: Apricot budded on peach are very inferior—short lived, more liable to disaster—and the fruit of second rate flavor. Budded on the plum the apricot may be considered a hardy tree, he says, and well adapted to strong soil, in which it always holds its fruit better than in light, sandy soil. What a field for the Russian apricot is here presented.

But we will not pursue the subject further, lest we bethought disposed towards enthusiasm. Yet we dare predict the day will come when the importation and use of foreign plum stocks not only will have ceased, but the use of all other plum stocks, and even the peach stock.

Peaches and apricots we are unable to report upon, the buds set the past season on Marianna stocks, somewhat to our surprise, not as yet having fruited.

W. P. STARK,
Louisiana, Mo.

SKETCH OF THE ORIGIN OF "WELLS SEEDLING" GRAPE.

REPORT OF C. I. ROBARDS OF BUTLER.

While in the city of Rich Hill, in the county of Bates, in the latter part of the summer of 1886, my attention was directed to some large, showy, white grapes growing on the premises of a gentleman in that city.

The fruit attracted my attention, not only on account of its size, but because of its peculiar color, which while it would be called white had, on the sun side of well ripened specimens, a shade that may be described as bronze. My interest was still further increased when I learned, on enquiry, that the grape was a seedling not yet made known to the public.

Considering this discovery as something of value, I herewith submit the following partial history of its origin.

I was informed that the original plant was first discovered on the farm of a resident of Ohio, and that on the occasion of a visit to the farm of this gentleman by a Mr. Wells, an amateur fruit-grower of the neighborhood, it sufficiently attracted his attention as to cause him to request and secure a few cuttings, and from the plants propagated by him, a few plants were sent to his relative in Rich Hill. These were planted in the spring of 1882 or 1883, and bore their first crop in 1885.

Very little attention had been given to these three plants in the way of cultivation. The fruit was sent to the Kansas City Fair in the fall of 1886, carefully examined by many prominent grape-growers, none of whom were able to identify it as any known variety. The fruit was named "Wells Seedling" for the man who propagated the first plants of this variety. In flavor the fruit was pronounced very good.

CHARLES I. ROBARDS,

Butler, Mo.

By motion the society indorses the action of the Committee on New Apples, in naming the three new apples on exhibition.

The name Woodmansee is the name given to a new apple shown by N. F. Murray.

DISCUSSION.

Mr. Robards—I would like to say a good word for the Souhegan raspberry and the Worden grape. This raspberry is early, hardy and productive. The Worden I regard as superior to the Concord in every respect.

Mr. Goodman—I have seen the new grape called Well's Seedling. It attracted attention at the St. Louis Fair on account of its color, large size, perfect bunch and peculiar flavor. At first Mr. Madinger thought it must be some old variety brought to light, but no grape-grower could identify it. We want to test it further and think it will prove valuable.

Mr. Murray—I think the grape very fine indeed.

Mr. Robards—It rots but little, while on Concords near by more than half the bunches were rotten.

A new apple from Iowa was exhibited and named Woodmansee from the introducer.

Mr. Follett wanted the society to have three apples, a sweet, a sub-acid, and an acid one analyzed by a competent chemist with a view to determining their relative value as food for man and stock.

Prof. Taft said that such analysis had been made frequently and that it would cost about one hundred dollars for the society to have such an analysis made.

The following was presented by *Mr. Follett*:

Resolved, That a committee of three shall be appointed to present at the next meeting of this society, a chemical analysis showing the relative nutritive power of three kinds of apples: 1st, a very sour; 2d, a tart or slightly sour; 3d, a sweet. The standard of comparison to be expressed in per cent. per pound.

Committee: J. B. Follett, S. M. Tracy and N. F. Murry.

SECRETARY'S REPORT.

Again we greet you, dear friends, at our annual meeting. Our society has been prospering and growing in spite of the many drawbacks that have beset us by the way.

It seems to me that we are in the position to make another onward step; we need closer organization, more systematic work and better means for our development than ever before. To take this step perhaps it will be necessary for us to become incorporated as a State Horticultural Society. We need more money to keep up with our growth and if we ask the State we will get it. A special effort in this direction will be necessary this year or we will lose our prestige and fall behind our sister States.

The work we have done the last few years and the good we have accomplished, and the position we now occupy is equal to that of any of our State societies.

We have as good men, as good horticulturists, as good specialists, as good workers, as good fruit farms, as good lands, as good climate and as good successes as does any other State in the Union.

Our advantages and our resources have just begun to be known, and the beginning of our best and most necessary work as a society is just dawning upon us.

The whole of the southern portion of our State is destined to be one vast fruit belt and needs only to be known to be utilized. The Ozark region of South Missouri is of the very best of fruit lands in the whole country. I except nothing, and in a very few years we will see thousands of acres of the finest of fruits growing, thousands of people engaged in the work and hundreds of cars loaded every day and on the road to the market.

ST. LOUIS FAIR.

As known to most of you the society failed to make arrangements for the display by our county societies at the St. Louis fair. We could not get the money and privileges we ought to have and hence we thought it prudent not to make the attempt. We might have made a creditable show, but not the one we wanted to make—one that would show the possibilities of our State and its wonderful growth by a display from some, twenty thirty or forty of our best counties.

But the only display made by the society this year was the one made in St. Louis as a representation of the fruits grown as a whole.

This collection was made from all parts of the State, and especially does the State society owe its success to our local societies for the fine collections of fruits sent in from the south, of Carthage, Butler, Nevada and Springfield; from the north, of Oregon, St. Joseph and Weston; and from the river towns, Kansas City, Boonville, Columbia and New Florence—all sent in collections of fruits and helped the sum total.

From all these a collection was made, probably the finest one the society has ever displayed.

A collection of apples that could not be beaten for size, color, perfection and symmetry. The most perfect and even lot of specimens we have ever had the pleasure to show.

Of apples, we had two hundred and thirty-seven varieties; pears, forty varieties; grapes, thirty varieties; quinces, three varieties.

Our premiums were:

1st. One hundred dollars on "the largest and best collection of fruits by any society."

2d. Twenty dollars on "the best collection of apples."

3d. Seventy-five dollars on "the finest display; sweepstakes."

This last premium the society gave back to the fair association, and asked them to have the committee pass over the exhibits again and leave the Missouri Society out of the entries.

This was done, and the society gained more honor and glory over this act than over the others.

PREMIUMS AT NEW ORLEANS.

While on this subject of premiums it will be proper to notice the premiums that were taken at the World's Fair (World's swindle) at New Orleans.

Time and again have I received notice from W. H. H. Judson, an agent, about our premiums. First one asking us to take a per cent., and finally offering us 50 per cent., with 5 per cent. off, for collecting.

The following are some of the circulars and letters received :

Letters written time and again to the officers of the fair never as much as received an answer. Why the association could not pay us whatever we were entitled to without letting it go through the hands of another agent after deducting 50 per cent., is something past finding out.

The Illinois society, A. C. Hammond, and Iowa society, Mr. Brackett, are in the same position, and, like us, rebel against any more swindling. Why the affairs cannot be settled up honestly and fairly is unknown.

(As a last resort I guess we had better fall back on Prof. S. M. Tracy and Parker Earle, from each of whom I hold a letter written to me, previous to our going, saying we would get every dollar of premiums and medals we could take.)

To cap the insult we are now refused even our gold and silver medals, they choosing to give us bronze instead.

In answer to all these letters and circulars (by consultation with our president), we decided not to accept the offers, but to wait until we had a proposition from the officers of the fair.

Here are twenty-six diplomas or certificates of our awards.

I append a few of the circulars and letters.

NEW ORLEANS, May 27, 1886.

DEAR SIR: The final sale of the effects of the American Exposition to meet the claim of the World's Exposition, under the order of the court, has been concluded. The sale under the order was on a twelve months' credit. The main building, which cost \$480,000 to construct, brought \$9,000. The government building, costing \$275,000, brought but \$4,000, and this on a twelve months' credit.

Representing already premium creditors to the extent of one-fifth of the premiums due, I am satisfied that with still further co-operation on the part of creditors, I can obtain a settlement on the basis of fifty per cent. cash on the amount of your approved premium claim, together with the issue of the diplomas or certificate of each award made to you, and of the official bronze medal where medals were awarded.

I remain yours, etc.,

WM. H. H. JUDSON.

NEW ORLEANS, August 25, 1886.

To Premium Creditors of the World's Exposition :

Since my circular to you of May 27th, last, explaining the financial condition of the World's Exposition, there have been no developments of special interest to you.

I can at any time secure to premium creditors fifty per cent. cash of their admitted claims, as well as the issue of diplomas or certificates of award, and of the official bronze medals, when any kind of medals (either gold, silver or bronze) have been awarded. This is the best that can be done at this time. My charge for such service as will be seen from the terms of the blank authorization herewith enclosed, are comparatively trifling.

Very truly,

WM. H. H. JUDSON.

NEW ORLEANS, Sept. 13, 1886.

DEAR SIR: From recent developments I am constrained to materially change my opinion concerning the ability of the management of the World's Exposition to pay their liabilities in full. There have been no claims settled except upon the basis of fifty per cent., and they positively assert that they will not settle any claim on any more favorable terms, and that if it were possible in case of the most fortuitous circumstances, to pay more than fifty per cent., that those who have accepted the fifty shall share equally in the benefit of the surplus.

I place these facts before you. In my judgment it is policy to accept the fifty per cent. without delay. It is mortifying to me to be compelled to give such advice, but I am doing that which I conclude to be for the best interests of those I represent.

Yours, etc.,

WM. H. H. JUDSON.

NEW ORLEANS, Oct. 5, 1886.

L. A. Goodman, Esq., Westport, Mo.

DEAR SIR: Enclosed find circular issued some time since to those creditors of the World's Exposition whom I specially represent. Later developments show the Exposition's finances to be even worse than represented. In my judgment there is not a possibility of the Exposition paying over fifty cents on the dollar, and I doubt its being able to pay that all around. A large majority of the premium creditors have accepted the settlement, the leading ones finding on investigation that it was politic to do so. There stands on the books \$75 to your individual credit, and \$405 to the credit of your State Horticultural Society, of which you are the secretary. I can send you exchange on New York for fifty per cent. of the amount, less \$5 for services, or \$235. One gold and two silver medals were likewise awarded, but only bronze medals can be issued for them.

Yours, etc.,

WM. H. H. JUDSON.

NEW ORLEANS, October 20, 1886.

To Premium Creditors :

I trust that no one to whom I send this circular will consider me officious in doing so. My principal motive is the commission (though small) which I charge for the settlement of claims placed in my hands. But I am influenced also by another consideration, and that is the desire that the affairs of the World's Exposition shall be finally settled amicably and equitably by its officials without being thrown into court and its assets placed in a receiver's hands.

I can secure for any creditor cash to the extent of fifty per cent. of his claim, and will do this for a very small commission. Every one receiving this circular has heretofore received documents from me covering this matter. The affairs of the Exposition have approached so near final settlement, or so near a receiver's hands, that this will be my final circular to premium creditors.

Will promptly respond to any inquiries made by any interested.

Very truly,

WM. H. H. JUDSON.

EXPERIMENT STATIONS.

Hon. W. W. Hatch at the first session of the Forty-ninth Congress introduced a measure with this title :

“A bill to establish agricultural experiment stations in connection with the colleges established in the several States under the provision of the act approved July 2, 1862, and of the acts supplementary thereto.”

I think that this is a very important measure and one which should receive the hearty support of every fruit grower and farmer. It provides for \$15,000 yearly for the college in every State. Just what we need.

A resolution should be introduced giving the sense of this society and asking Mr. Hatch to bring the bill up at once on the assembling of Congress.

CONDITION OF FRUITS.

The past year has been one of extremes. We have had the coldest winter, the hottest summer; the rainiest time and the driest time; the wettest spring and the longest time without rain, the best of prospects and the blasting of them.

Yet in spite of all these extremes we have had better success than we had expected, and when we see the small results in some of our undertakings we can only compare them with all other businesses and see that we have been better favored than many of the others. The man that grew wheat hardly recovered his expenses, the man that grew corn had the prospect ruined by the long and protracted drouth, the man that grows stock finds that with the diseases, the cold winter, the long drouth and the low prices, he is not making it very profitable. So then with all the discouragements and all the drawbacks we find the fruit grower is as much favored, or more so than any other class of producers.

Our late apples, although not up to the standard, yet if we carefully handle them and hold them, we will get good prices for them yet. They are scarce at most of the points in the east and they are now enquiring for apples all over our country. Take good care of them and you will yet receive a fair price.

I believe that last year was the only one for a long time when apples were worth less in the spring than in the winter. Some who bought and some who held did so to their sorrow. But this year I think we shall yet get fair prices for our apples.

OUR REPORT.

Although our report has been well received and received many encomiums, yet I trust that each year we can make it better and better. The great drawback is the length of time it takes to get it published and the necessary delay. Last year we were promised it months before it was ready, and these continual delays are provoking. The printers have so much on their hands they cannot help themselves.

One of our members wrote me that he was tired of waiting and if he could not get his soon he did not want it. Yet it was not my fault but the delay with the printers.

Now this year I have half of the Mss. ready and they promise to begin the work immediately after this meeting. If they will do so we can get the report out much sooner than ever before.

I believe that we might have an improvement in our plan if we could have meetings every three months and then publish a pamphlet immediately after each meeting with a complete report of the meeting. The matter would not get so old or so dry, but would be fresh and new and do much more good than can be done now.

It would cost no more to have them published in quarterly than in yearly and then the postage would not be one-fourth as much as it now is.

Our report should go out as a quarterly publication to do the most good.

OUR SOCIETY.

Some persons are claiming that the State has no authority to give our State society any money, because we are not organized as a State body and under the control of the executive.

Now if there is any officer or society in the State that accomplishes anything near as much as this society does with the amount of money used, I should be glad to see them. I believe, and know that our society has been the means of letting the world know of the vast capabilities of our State as a fruit country by its displays of fruits in different parts of the country than any other one thing. These displays have brought hundreds of buyers into the State for our apples and induced hundreds of persons to come here and settle.

It may take a united effort on the part of all members of our society and of the local societies to prevent our being defeated in our appropriation.

Other States get from \$2,000 to \$5,000 per year and we should have as much and then we could make a much grander showing than is now possible for us to make.

We ought to have enough to help pay the expenses of our executive Committee and the members of the Standing Committees, and of those who are invited to address us on their specialities.

The broad scope of our Horticultural Societies, and broader work we have to do will forever demand a just recognition of their needs and we will get them if we only ask aright.

Why the fruits of our State bring annually nearly \$10,000,000, if we can estimate by what statistics we have of certain counties.

OUR MEMBERSHIP.

I would that we might still increase it to what we should have in our grand State, 1,000 members. I hope the time will come when we can put every interested, intelligent fruit-grower in the State as a member. Until then we must work for members and keep them close to us in our work.

Our plan of having all local societies members of the State Society is a good one and one that is bringing in its good results. We have seen its effects in the local organization of a number of

COUNTY SOCIETIES.

Among these I will mention The Missouri Valley, Kansas City; Holt County, Oregon; Montgomery County, New Florence; Bates County, Butler; Central Missouri, Boonville; Jasper County, Carthage; Greene County, Springfield; Lafayette County, Lexington.

Every one of these made a fine collection of fruits at some time during the year, and a number of them received a number of premiums either at St. Louis, Springfield, Kansas City or St. Joseph.

These fine fruit shows have been the means of drawing the attention of the public to our fruits more and more. These societies are building up a number of good horticulturists in all parts of the State, and it will not be long ere we shall hear from them. They are studying and watching and learning every day something new in their work, and with it is growing their love of the work.

TRANSPORTATION.

Transportation of our fruits is a subject of the utmost importance. Talk about the surplus of apples in any locality, it would soon disappear

if they were but placed where people want them at reasonable rates. How many thousand of our people never see them on their tables, and yet perhaps not many miles away they are lying in plenty awaiting a sale. If every one could only have them to eat, how long do you think we would talk of a surplus?

The one great benefit of a great crop of fruit is that thousands will use them who never used them before, and thus become regular fruit buyers.

The other day in going to the cider mill with a load of apples some boys asked for an apple and I began throwing them out to them; soon a crowd began following and I kept throwing, and as we were crossing a railroad track where a lot of men were at work they began grabbing them, and I kept throwing out as we went along, now with both hands, and the men began leaving their work and running after them from away up the track, and in spite of their boss' yells they kept coming until they all had their hands full. How quickly such a crowd could cause a surplus to disappear. What we want is quick and cheap transportation to these needy points.

OUR MISSOURI FRUIT SHOW.

I hope we can make next fall, and the attempt will again be made to induce the fair association, either at St. Louis or Kansas City, to give us the money for the premiums and the buildings, and then let the society manage the rest of the work. If therefore, we have a good fruit crop this year I hope we can succeed in our plan of holding the great fruit show, from twenty, thirty or forty counties of the State, each trying to do its best in the exhibition and in showing the people what we can do in the fruit business.

FRUIT STATISTICS

Are as necessary as are our crop statistics. We know just what the crop of wheat and corn is, and always have a good estimate of the coming crop, but of the fruits we have very little satisfactory knowledge. If we could get a good idea of what the crop of fruit will be, the fruit growers would get a more uniform price for their fruits and our buyers would not reap all the advantages.

Monthly crop reports and statistics are what we shall attempt to obtain if, we have the money given us to do it with, in the future.

A library like many of our other State societies have in use is also needed and when we get the money from our New Orleans matter it is agreed that it be used for the beginning of a library. The best use it could possibly be put to.

Our new apples are still promising, and this year we have a few more candidates for favor.

Out of the hundreds now scattered over the country we have to our special notice about a dozen, and I think yet we will find the apple desired above all others. Our whole south-west is filled with seedlings and among them are some very promising.

A STATE ENTOMOLOGIST.

The need of one is apparent more and more every year. I hope that this year we may secure the money needed for such work, if not enough to pay the whole expense, at least enough to pay for the extra trouble they will take in the work. One or two thousand for the two years we should have, at least. Five or six hundred dollars a year would help some one to make a specialty of this work and give the time to it, it demands, and when we want some assistance we would not feel afraid to call upon them.

AMERICAN POMOLOGICAL SOCIETY.

This society will meet at Boston next September, and it would be well for our society to send a delegate or two with a collection of fruits.

The meetings of this society are the most important of any held in the United States and our State at least should be represented. The last report of that society is one of the most valuable of its kind.

THE STATE SOCIETIES.

The numerous State societies of the country receive aid from their States, some more and some less. But this we know, that wherever the State has been and is now liberal with them, there we find horticulture taking an advanced step and their progress has been very marked.

First of all the State of California has been the leader in this work and their works show for themselves.

The wine business alone received \$10,000, and with special agents they show what can be done. The horticultural department gets \$5,000, the secretary, \$1,800 and the chief of horticulture, \$2,400 per

year, and the result of their work is seen on every hand. They are the best organized and combat their diseases and their insects just as an army does its foes. The whole fruit business is reduced to a system and no other country has such a uniformity in its fruits as does California. It has double the amount of pine forests of any State in the Union and yet the secretary of forestry receives \$2,400 per year for his services.

Alabama Horticultural Society received \$4,000 per year and the secretary \$1,200.

Connecticut sustains an experimental station.

Illinois gets \$2,000 per year and all the other prerequisites.

Kansas receives \$3,000 and her secretary \$1,200 and seven thousand reports published.

Michigan sends out six thousand reports, has \$3,000, and \$1,000 for the exhibition of fruits yearly.

Minnesota gets \$1,750. The Horticultural farm \$2,000 and Peter Gideon, \$1,000 per year.

New Jersey has \$5,000 and her fine peach orchards show the result.

New York has a \$20,000 experimental station and it shows, not only in the State, but far outside.

We have as many advantages as any of them and if we can get a liberal appropriation we can make our State one of the wonders of the west in a few years.

The Illinois State Society meets the week following our meeting and it will be well for our society to send a delegate. Also the Iowa State Society meets the same time and we should also be represented there. These interchanges are very pleasant and valuable to us all. Matters can be learned wherever we go, and a report from each of these State meetings will be of value to the society. We need a more intimate acquaintance and closer connection with our other State societies.

REVISION OF THE APPLE LIST.

I would suggest that this revision as to time of ripening, which was begun a few years ago be taken up by a committee and the dates be given of their ripening. I find that confusion occurs in the award of premiums, by some classing an apple among the fall, and another classing the same among the winter apples. A committee of three to take this matter in hand would give dates and we could then have a western standard for our fruits.

RULES TO GOVERN THE JUDGES.

We should have a set of rules, and as the following are the best I know of I would advise the society to adopt them.

GENERAL RULES.

1st. The general appearance of the fruits, care in its selection and taste displayed in arranging, *each entry* being distinct.

2d. In every group or single plate, never more than one plate of any variety allowed. Lists of names of varieties must be attached to entry cards.

8d. The *same plates* of fruits cannot compete for different prizes, they must be duplicated.

4th. When the number of specimens for a plate is given, just that number must be shown.

5th. In general collections of fruits where several are specified they must all be shown. Where the number of varieties are given just that number must be shown no more or less.

6th. In all cases of best collections (1) *number of varieties ranks first*, all other things being equal, (2) *quality ranks second*, (3) *condition ranks third*, (4) *taste in display ranks fourth*.

In *single plates we would* have 1st Condition, 2nd Form, 3d Size, 4th Color, 5th Quality.

In using the scale, use 10. Where the totality of marks do not exceed fifty per cent. it must be passed as unworthy.

A Plate shall consist of *four for large specimens* and *five for small specimens*.

No person shall be allowed more than one entry for any one premium.

Where *best* is used all things shall be taken into consideration.

Where *quality* is used it shall mean quality alone.

SPECIAL RULES.—APPLES AND PEARS.

1st. *Condition* of fruit, which should be in its natural state, not rubbed, nor polished, nor specked, bruised, eroded, nor wormy with all its parts, stem, calyx, segments, well preserved, not wilted, nor shriveled, clean.

2d. The *size* should be average and the specimens should run even.

3d. *Form* should be regular, and the lot should be even.

4th. The *color* and markings should be in character, not blotched nor scabby; in fact, a perfect fruit.

5th. *Texture* and flavor are important.

PEACHES AND PLUMS.

Four points, (1) form, (2) color, (3) flavor, (4) condition.

GRAPES.

Five points: (1) form and size of bunch, (2) size of berry, (3) color, (4) flavor, (5) condition.

CURRENTS.

Four points: (1) form and size of bunch, (2) size of berry, (3) flavor, (4) condition.

GOOSEBERRIES.

Four points: (1) size, (2) color, (3) flavor, (4) condition.

CHERRIES.

Four points: (1) size and form, (2) color, (3) flavor, (4) condition.

STRAWBERRIES.

Six points: (1) size and form, (2) color, (3) flavor, (4) firmness, (5) condition, (6) productiveness. Stem and calyx adherent.

RASPBERRIES AND BLACKBERRIES.

Five points: (1) size, (2) color, (3) flavor, (4) condition, (5) productiveness and hardness.

AN AMENDMENT

To our constitution would be well, and that is to have the new officers take their places in office at the June meeting. It would give time for the old officers to close up the matters of the year by that time and all settlements can then be made. We have hardly ever been through with our report until about that time, and it has been impossible to get matters settled up before then. Now they take their offices on March 1, and by letting it run until then everything would be in better shape.

THE ORNAMENTATION OF SCHOOL YARDS AND PUBLIC GROUNDS

will be a subject that will need attention this next spring. The State Society, with the help of local societies, should take this matter and at a stated day (Arbor day) we should all take hold of it and have our school yards and court house yards an ornament instead of an eye sore. Arrangements will be made with the Superintendent of Public Schools to have this done officially.

EXPENSES OF SECRETARY AND CASH PAID OUT.

June, self, expenses at Louisiana.....	\$14 50
June, R. E. Bailey, stenographer.....	13 10
June, board bill, visitors.....	15 60
June, expense of essayist, fare, \$6.80; board, \$6.10.....	12 90
June, telegrams, \$2.00; premiums, \$23.00.....	25 00
June, express on exhibits.....	6 90
August 7, paid postoffice bill.....	49 12
September 11, paid cold storage and express.....	11 15
September 13, paid cold storage and express.....	6 00
October 5, paid cold storage and express.....	7 00

EXPENSES OF SECRETARY, ETC.—CONTINUED.

June 12, freight on reports.....	\$13 25	
July 1, freight on reports	14 70	
Delivery at Westport.....	3 00	
August 3, H. N. Farey, fruit report	5 00	
August 4, Tribune Printing Co.....	6 00	
September 10, expenses to St. Joseph	6 15	
September 10, expenses of Gano at St. Joseph	10 00	
September 18, expenses to Boonville.....	9 00	
October 2, expenses to Springfield.....	12 30	
October 5, Coll. fruit for St. Louis.....	7 95	
October 5, expenses to St. Louis, \$9.40; express, \$10.10; dray, \$2.80; paper, \$2.40; labels, 50c	25 00	
Ornamenting, \$2.70; board, \$15.00.....	17 70	
October 14, express on reports received, Michigan, \$1.65; Min- nesota, \$1.80; Kansas, \$1.10; West New York, 90c; Illinois, \$1.50; Wisconsin, \$2.20; Pennsylvania, \$2.50; Indiana, \$1.45.	12 95	
October 14, express on reports sent.....	7 20	
October 19, postage bill.....	8 09	
October 23, subscription for papers	13 40	
November 24, Macdonald & Spencer, printing.....	22 75	
December 1, Postoffice bill	30 00	
December 2, express from Boston, reports	1 40	
December 2, paper, \$1.00; pencils, 75c.; tablets, etc., for meet- ing, \$1.75	3 75	
Cold storage.....	1 65	
December 6, express on fruit to meeting	3 80	
December 6, paid to Mrs. Dr. Goslin	6 80	
December 9, expenses of winter meeting.....	38 60	
Expenses of delegates.....	15 10	
Total expenses	\$457 36	
November 1, cash received for membership.....		\$21 00
October 16, cash received from St. Louis.....		120 00
Total cash received		\$141 00
Balance due.....		316 36
Total.....		\$457 36

L. A. GOODMAN, Secretary.

TREASURER'S REPORT.

LEXINGTON, Mo., December 9, 1886.

Date.	Amount.
June 25, 1886. Received of Z. S. Ragan, former treasurer.....	\$174 26
Nov. 8, " " of State Treasurer of Missouri.....	1,250 00
	<u>\$1,424 26</u>
June 25, 1886. Warrant 86, expenses of Z. S. Ragan to meetings.....	29 20
Dec. 9, " " 89, R. E. Bailey, short-hand reporter.....	20 40
" " " 90, J. E. Evans, expenses.....	49 40
" " " 91, J. A. Durkes, expenses.....	18 00
" " " 92, D. S. Holman, expenses and cash paid out...	47 55
" " " 93, premiums at Lexington meeting.....	89 60
" " " 94, Secretary's salary.....	250 00
" " " 95, Secretary's expenses and cash paid out.....	316 36
	<u>\$820 51</u>
Amount paid out.....	
Leaving balance in treasury December 10, 1886..	603 75

D. S. HOLMAN, Treasurer.

MR. CHAIRMAN; Your Committee on Finance find the report of treasurer, and expense account and receipts of secretary, correct.

Furthermore, we recommend that our society select a committee of three to wait on our legislature this winter and press our claim for an increased appropriation to better enable us to more rapidly develop the great fruit growing interest of our State, believing that the money so expended will return a hundred fold to the State.

N. F. MURRAY,
F. LIONBERGER,
J. A. DURKES,
Committee.

The Secretary's Report was referred to a committee consisting of the following: Prof. S. M. Tracy, Maj. Z. S. Ragan, Dr. A. Goslin.

The following invitations were given by different places for our next meeting.

Invitation by the Central Missouri Horticultural Society, December meeting, by C. C. Bell, Secretary.

Invitation by the Montgomery County Horticultural Society, June meeting, by F. Lionberger, Secretary.

Invitation by the Greene County Horticultural Society, any time, by D. S. Holman, Secretary.

On behalf of the lovers and devotees of horticultural in and about St. Louis the undersigned extend an invitation to this society to hold its next semi-annual meeting in St. Louis. Levi Chubbuck for Coleman's Rural World, J. B. Follett for Journal of Agriculture.

WEST PLAINS, MO., November 23, 1886.

Messrs. J. C. Erans President, L. A. Goodman Secretary, Missouri State Horticultural Society:

GENTLEMEN—We desire through you, on the part of the citizens of West Plains and Howell county, to extend to the Missouri State Horticultural Society to make West Plains the place of the next annual meeting of your society, promising to do everything in their power to make pleasant and agreeable their stay while here, and to show them the wonderful possibilities and adaptation of our county for the propagation and culture of fruit and flowers, of climate, soil and configuration of the country.

Come Ladies and Gentlemen of the Missouri State Horticultural Society! The latch strings hang out and we promise to do our best to make everything as agreeable and profitable as possible.

P. P. DOBOZY,
S. J. LANGSTON & BRO.
O. H. P. CATRON,
H. T. SMITH,
CARTER & ALSUP.

By motion the time and places of holding our semi-annual and also the annual meeting was referred to the Executive Committee.

Since the meeting the Executive Committee have selected the following places for the next meetings. June 7, 8, 9, at West Plains; December 6, 7, 8, at Boonville.

ELECTION OF OFFICERS.

J. C. Evans, Harlem, was elected president.

N. F. Murray, Elm Grove, was elected vice-president.

L. A. Goodman, Westport, was elected secretary.

D. S. Holman, Springfield, was elected treasurer.

REPORTS FROM LOCAL SOCIETIES.

THURSDAY, 2 P. M.

REPORT OF LAFAYETTE COUNTY HORTICULTURAL SOCIETY.

BY CHAS. TEUBNER, SECRETARY.

STANDING COMMITTEES.

Small Fruits—Geo. F. Maitland and R. M. McChesney.

Stone Fruits—James Aull.

Orchards—Geo. F. Maitland and James Aull.

Vineyards—Chas. Teubner and A. A. Lesneur.

Vegetables—Fred Neet.

Flowers—Mrs. M. V. Gordon and Mrs. J. F. Schultz.

Ornamentals—Mrs. F. Graddy and Chas. Teubner.

Entomology—Dr. J. B. Alexander.

Botany—C. F. Lane.

The duties of these committees are, to report at each meeting the condition of trees, plants and the fruit crop; damage by insects or the influence of weather; new varieties of trees and other items of interest.

This society was organized August 3, 1885. Meetings are held on the second Saturday in each month at 2:30 P. M. So far they were held at the office of the president in Lexington. During this year only one meeting was missed. Attendance usually small. At the Novem-

ber. 1885, meeting an exhibition of apples was held, at which some twenty varieties were represented. In May, 1886, the society gave an exhibition of strawberries at the courthouse in Lexington at which some thirty-six varieties were represented. The berries were unusually large and fine, and the display considered very fine by all who saw it.

At the annual meeting of the State Horticultural Society held at Lexington, December 7, 8 and 9. 1886. our society made a display of apples, consisting of some 150 plates, comprising near eighty varieties, of which twenty varieties were awarded first and five varieties second premium.

The society has in use a blackboard, three by four feet, which is used for illustrating methods of planting, pruning, training, labor saving devices, etc. A microscope is also used when necessary for the examination of insects, plants, etc. It is the intention of the society to get up a library of books pertaining to horticulture and kindred subjects.

REPORT OF GREENE COUNTY SOCIETY.

D. S. HOLMAN, SPRINGFIELD, SECRETARY.

Officers and Members Missouri State Horticultural Society :

The Greene County Horticultural Society respectfully submits a brief report for the year just closing.

Since our last report to your society in the June meeting at Louisiana we have been steadily executing our purpose to make the year one of work and have made some progress. Our work for this year has been harmoniously done, and in quantity and character we think a gratifying improvement upon the past.

The society has held twelve monthly meetings this year with an average attendance of about fifty per cent. of the membership. Our summer and autumn meetings have been so conducted that they

have been more interesting and much more largely attended by our members and larger number of visitors than ever before.

Our society held their usual spring or semi-annual floral and strawberry exhibition, closing successfully and pleasantly with a strawberry festival. We also made a fruit display at the agricultural association's fair at Springfield, in September and 1st and 2d of October, in which we think more fine apples were shown than we had ever been able to exhibit before, and the first and second premiums of \$75 and \$30 were awarded to us for the best collections of apples.

Our financial management and condition has improved. The reliable working element of the society has been very much strengthened by acquisition. Our membership is steadily increasing nicely, the following is a list of members names :

From this list it may be seen that about forty per cent. of our membership are ladies—our wives and daughters, who delight to demonstrate the fact that woman has a mission in horticulture.

At last Saturday's meeting the secretary rounded up the business of the year, paid all our debts, and elected officers for a new year, whose names are here given :

W. E. Sheffield, President ; J. Kirchgraber, Vice-President ; D. S. Holman, Secretary ; R. W. Meacham, Treasurer.

STANDING COMMITTEES FOR 1887.

Small Fruits—W. M. Hopkins, M. J. Rountree and H. H. Park.

Orchards—Henry Sholten, D. S. Holman and E. H. Lair.

Vineyards—John Dailey, R. G. Parker and Johnathan Moore.

Stone Fruits—G. W. Hopkins, L. M. Hill and J. M. Kelly.

Vegetables—R. W. Meachim, Jonathan Moore and W. C. Freeman.

Flowers—J. Kirchgraber, Mrs. Wade Burden and Ed. Quin.

Ornamentals—Mrs. D. S. Holman, Miss Mollie Hopkins and Mrs. Parker.

Entomology—Dr. Lane, Judge Rountree and Prof. E. M. Shepherd.

Botany—Prof. Shepherd, Mrs. Prather and Mrs. Dr. Roberson.

The Rural World was recommended to members as the best paper for our society.

They elected the President and secretary delegates to your annual meeting, with instructions to represent our society as a most willing auxillary to yours, our parent society.

We hope that your meeting in Lexington may result in profit and pleasure to all, and that your June meeting may be held in our city—Springfield.

D. S. HOLMAN,
Secretary.

REPORT OF BATES COUNTY SOCIETY.

HENRY SPEER, BUTLER.

To the Officers and Members of the State Horticultural Society:

The Bates county Society reports, that as a society the last year has been the most prosperous of any since its organization; its meetings have been well attended, particularly the summer picnic meetings around among the members; its membership has constantly increased until the secretary has on his roll one hundred and twelve names, about one-half of them being active members; it has widened its sphere of usefulness so that it now reaches nearly all parts of the county and a few from beyond the border; its papers and discussions during the year have covered a wide range of subjects and have been of practical benefit to many if not all its members, and its influence is being felt and acknowledged throughout the county; it has come to stay and my prediction is will last and carry on the good work after its originators have passed to that bourne from which no traveler returns.

The fruit interests of our county are on the increase and more interest is being taken in the culture of fruits and ornamentals from year to year, for which our society claims a share of the credit. The crop of small fruits the past season was large, everything doing well except blackberries, some rust and affected somewhat by dry weather. Yet some patches did well.

Prices of all kinds of small fruits were rather too low to leave very much margin to the commercial grower, but to the farmer and

amateur, who grew them only for home use, the small fruit crop was satisfactory.

The apple crop promised very fair early in the season, but the long continued dry, hot weather cut the crop very short, and while cider apples and windfalls were plenty, really good winter apples were very scarce, and the few that were shipped brought rather low prices, so the apple business has been rather unsatisfactory this season. A few of the trees that had been affected by the hard winter of 1885 gave up the ghost during the dry weather, but at the present time most of the orchards are in fair condition and give and promise, for another year. Taking all in all, the Horticulturists of Bates county feel encouraged, and while others may excel us in results, in zeal for the good cause we expect to be the peer of any county in the great State of Missouri.

Respectfully submitted,

HENRY SPEER,

Secretary.

REPORT OF MONTGOMERY COUNTY HORTICULTURAL SOCIETY.

F. LIONBERGER, NEW FLORENCE.

LADIES AND GENTLEMEN—I find in the programme of this meeting, that the secretaries of local horticultural societies are required to report. Just *what kind* of a report is wanted, I do not know. However, I beg leave to report as follows: Just about one year ago, Montgomery County Horticultural Society held its first annual meeting, the society then being about three months old. At that meeting we elected officers and adopted the by-laws as they are published in the horticultural reports of our State for local societies. In electing officers we had considerable trouble to get men that were qualified for their work, as we were all without any experience of the kind; living as we did in the back woods, we found this to be a serious trouble: however we pushed ahead and did the best we could. We elected Judge S.

Miller for president, but his old age did not permit him to be with us at any of our meetings, as it is at least 20 miles to his residence and a terrible rough road at that, he however did all he could under the circumstances by sending us papers and encouraging letters. We had our standing committees appointed, requested them to report at each meeting, in writing if possible. These reports always give material for interesting discussions. Besides this we always managed to get a display of fruits by offering private premiums, as the society did not have funds enough to offer any. Our membership steadily increased so that during the summer we had some very good and interesting meetings and some very fine fruit shows. Though we also had meetings which turned out to be total failures on account of bad weather or the unavoidable absence of officers.

On last Saturday, December 4, we held our second annual meeting, at Pawells Hall, in New Florence, not in the log school house where the first one was held. We elected new officers, adopted new and strict rules which will be strictly enforced. To look back one year, I have no reason to be dissatisfied with the progress of the society during the year. The chances that our membership will be very largely increased during the coming year is very flattering. The *most* if not *all* of our winter meetings will be held in a neat hall in New Florence. Our president, Mr. R. H. Mansfield, as well as the other officers, have besides the regular by-laws adopted the following rules which will be enforced. All officers must meet at the place of meeting promptly, and at the hour specified, the meeting must be called to order, and business must be commenced. All the chairmen of the different standing committees are held responsible for a report from the respective committee, which *must be* in writing, *no excuse* to be accepted. Each member *must* pay his fee when it is due, if not, his name will be dropped. At each meeting, persons having any accounts against the society must claim them, a warrant will then be made out which will be duly honored by the treasurer, but no money is to be paid out any other way. A committee also was appointed, whose duty it shall be to see that all of the fruit on exhibition is properly displayed. This committee, upon arrival at the place of meeting must at once secure suitable tables, table spreads, plates and such other items as will be needed to make the display neat and tasteful. All of the fruits for exhibition are to be turned over to this committee. Every exhibitor has the right to put his fruit on plates, which have to be numbered and recorded, but after the fruit is on the table, he *must* leave it alone. After all of the fruits and flowers are all displayed, the committee must

than make out a report and hand it to the secretary. The President, in appointing the standing committee, took the best care to put every member where he can do the most good, every one has a chance to hear and to be heard, but he must do his duty. The fact is we do not intend to allow any one to shirk in our society after this. Our President will see that all of our rules are enforced. Thanking you for your kind attention. I am,

F. LIONBERGER,
Secretary of Montgomery County Horticultural Society.

The following are the standing committees of Montgomery County Horticultural Society, which were appointed shortly after the annual meeting by Pres. Mansfield.

Executive Committee—R. H. Mansfield, president; W. Loane, vice-president; F. Lionberger, secretary; Fred Gutman, Treasurer, and Mrs. John Jeffers.

Small Fruit—Judge Miller, Bluffton; F. Gutman New Florence.

Stone Fruit—John Coffman, H. Hill.

Orchards—Mrs. John Coffman, H. Hill; Fred Utz, Mrs. Gill, New Florence.

Vineyard—F. Lionberger and C. Grabenstein.

Vegetables—W. Loane, New Florence; Herman Willi, Montgomery City.

Flowers—Mrs. John Jeffers, Mrs. R. H. Mansfield, New Florence; Miss Ella Lytle, H. Hill.

Ornamentals—Miss Carrie Gutmann, New Florence; Mr. J. A. Trail, New Haven.

Entomology—Fred Gutmann, Fred Lionberger.

Botany—Mrs. A. W. Hathaway, H. Hill; Miss E. McMahan, Americans.

Committee on Display Fruit—F. Gutman, Mrs. J. Coffmann, Mrs. John Jeffers.

Respectfully,

R. H. Mansfield. President.

REPORT OF HOLT COUNTY HORTICULTURAL SOCIETY.

BY W. R. LAUGHLIN, ELM GROVE.

President—N. F. Murray.

Secretary and Treasurer—W. R. Laughlin.

Attendance at our meetings is generally small, as in all similar matters, a few do the work. Festivals and fruit shows bring out most people.

We have discussions at every meeting and essays occasionally.

A committee of the society obtained from the railroad an important reduction on rates of transportation of apples.

The last winter was a very hard one. Cold, at one time 27 deg.

The summer brought us the worst drouth for twenty-six years, but that gave us the chance to demonstrate the fact that our Loess-bluff Deposit soil can not be desolated by one years drouth if properly cultivated.

The apple crop of 1886 was a good one. Even on uncultivated orchards the apples were of fair size, well colored and of good quality. Orchards that had been well cultivated for years carried their fruit well through the drouth, and when a few light showers did come in the latter part of August and in September, the apples swelled to an un-hoped for size, and came to market, large, exceptionally highly colored and of quality, best.

The Codling Moth did us much damage this year. Our society passed a resolution on the subject that will result in work against the pest.

Holt county shipped about 200,000 bushels of apples this year, at a price averaging thirty-three and one-third cents per bushels, bringing into the country say \$66,000 in cash.

Our Missouri apples met the apples from Michigan, in Dakota, Nebraska, Iowa and Minnesota, and were preferred by buyers for their large size, superior color and higher quality, and because they kept better.

PEACHES.

Holt County is waiting for the shoots from the old stumps and for the very few new trees that have been planted the two last springs to bear. When they do bear the world can not beat the peaches of our hill country.

PLUMS.

Wild Goose—where fertilized by natives bore a good crop where the Curenlio and Gouger were destroyed. Miner does very well. Forest Rose is new but promising. Many new kinds are being tested.

GRAPES.

Concord—of course more than all others. Clinton a full crop. Delaware very full. Perkins is starting out well. Pocklington, Worden and Moories Early are growing into favor. The drouth this year stopped the rot.

STRAWBERRIES.

Strawberries—Crop this year large and very fine. Crescent, Mt. Vernon, Glendale, Sharpless, Cumberland Triumph, Daisy, etc., all did well. The interest in strawberry culture is increasing.

RASPBERRIES.

Gregg—Best shipped, but winter kills.

Hopkins—Not so large or so firm as Gregg but of good size, best quality, never winter kills and always bears a full crop.

Souhegan—Early, hardy, always bears full, but is too small.

Cuthbert—Best of the reds.

Turner—Always bears full.

BLACKBERRIES.

Snyder—Perfectly hardy, always full.

Lawton—Tender, but best when we get it.

Taylor—Large, hardy, good bearer, ships well.

CELERY.

Golden Heart Dwarf.—One lot raised this dry year on bluff land forty-five years farmed without manuring or clovering, but subsoiled in the spring of 1883 to the depth of eighteen inches: met the Michigan celery at St. Joseph and sold faster at better prices.

SEEDLING APPLES.

A Seedling originating on the place now owned by Mr. Meniffee from seed of the Yellow Bellflower planted by Mrs. Kinzy, now of Oregon, Holt county, was taken to the New Orleans Exposition by Mr. Goodman and there took the first premium as best new fall apple. It is proposed to give it the name of the woman who planted the seed—Kinzy. Specimens of this apple can not be shown at this meeting because they were spoiled by a mistake in handling.

A Crab, from seed of Hewes' Virginia Crab planted by N. F. Murry on his home place—apple and cider are shown here.

Mr. Blanchard, of Oregon, has given the world a fall apple of large size and good quality.

Our society had printed two issues of circulars of 500 each. These were sent out for the information of buyers and dealers in apples. The circulars paid well.

About one-half of Holt county is made up of hills, mainly of the Loess, but well mixed with other material. This hill country, we have come to believe, is as good a place in which to raise the fruits of our latitude as can be found on the continent. These lands can be purchased at very low prices. Who will come and occupy them?

W. R. LAUGHLIN, Secretary.

ELM GROVE, HOLT COUNTY.

REPORT OF THE CENTRAL MISSOURI HORTICULTURAL
ASSOCIATION.

BY C. C. BELL, SECRETARY, BOONVILLE.

Last January I published a call in our city papers for all interested in horticulture to meet at the court house in Boonville on Saturday, January 30, 1886, for the purpose of organizing a Horticultural Society. According to the call, a number of farmers and some other citizens met, and after some discussion, organized with a membership of eleven, who elected the following officers:

H. M. Meyers, President; C. C. Bell, Secretary. A committee was elected to draft a constitution and by-laws and report Saturday, February 6. Said committee reported as requested, and the association adopted the name of Central Missouri Horticultural Association, and with a few changes adopted the constitution and by-laws. Election of permanent officers for the first year resulted: H. M. Meyers, President; R. T. Kingsbury, 1st Vice-President; W. P. Thompkins, 2d Vice-President; C. C. Bell, Secretary; F. J. Roller, Treasurer.

Regular meetings are held quarterly—first Saturday in March, June, September and December. At the June meeting we had a good display of small fruits, vegetables and flowers, and was held at Thespian Hall. During the afternoon the hall was crowded with visitors, and a good programme of speaking, reading of essays and music was given, and all left well pleased with the success of the meeting, and added many members. The secretary announced that the next quarterly meeting should even surpass this one.

During the months of August the Board of Directors met and decided to hold a two day's fair in connection with the September quarterly meeting. After full discussion the board authorized Secretary Bell to procure and arrange all matters pertaining to said proposed fair—which resulted in a display of fruits, flowers and products of the farm—excelling all expectations—and proved to be a grand success. All suitable room in the large hall was well filled with exhibits, and during the time of meeting, afternoon and nights, all space was crowded with visitors. Over two hundred dollars worth of premiums were given out. This great success has called for the permanent organization of

a District Fair, which is now the main subject in hand by the association, and judging from the success which has attended the association from its organization, we may look for the district fair to be held at Boonville next fall. Respectfully,

Dec. 9, 1886.

CHARLES C. BELL, Secretary.

REPORT OF JASPER COUNTY SOCIETY.

Z. T. RUSSELL, SECRETARY, CARTHAGE.

To the President and Members Missouri Horticultural Society:

GENTLEMEN: As secretary of the Jasper county society, I have the following brief report to make:

During the last year this society has held meetings each month, at which questions of interest to the members have been discussed freely by all persons present, the discussions usually assuming more of an informal character than otherwise.

At the beginning of this year and for two or three years past the meetings were held on Tuesday, but in the early part of this year the time was changed to the first Saturday in each month. The meetings were usually held at 2 P. M. in the city of Carthage.

Another change, which, it is thought, has been for the better, was the charging of a membership fee of \$1.00 per year instead of none, as heretofore. This enables us to meet little expenses and to have some cash on hand, instead of an empty treasury. And I believe, too, that a livelier interest is manifested than when there was no fee. A person naturally prizes anything more or less highly according to its cost.

At the January meeting we had a valued visitor with us in the person of Mr. Levi Chubbuck, associate editor of Colman's Rural World, St. Louis, who read an able paper upon the subject of "The benefits to be derived from the work of a horticultural society."

Of the crops in this county this summer I shall say little. All of the small fruits were cut short more or less by the drouth—strawber-

ries about one-half. We had no peaches. A good crop of pears, and although apples were considered a short crop, yet they have been purchased and shipped in large quantities by at least four different firms in the city of Carthage. Large quantities of berries were shipped to all points of the compass, notwithstanding the drouth, although the prices realized were not large, still they were the means of distributing a considerable sum of money to persons in this city and vicinity. The question here has passed from "how to get people to raise berries" to "how can we find a profitable market for the berries we already have." Some few are becoming discouraged and probably will quit the business, but the majority of them appear to have "enlisted for the war," and to know no such word as fail.

Our society is not as aggressive and as full of interest as it should be, still as compared with one year ago, we have more money and more active, working members, and hence feel encouraged at the prospect of future usefulness.

All of which is respectfully submitted.

Z. T. RUSSELL,

Secretary Jasper County Horticultural Society.

A PAPER ON CELERY.

BY J. E. TWITCHEL.

On invitation of the Secretary of the Jasper County Horticultural Society, the following paper was presented and discussed as pertinent to the topic, August 7, 1886, "What shall horticulturists produce for profits besides small fruits?"

MR. PRESIDENT AND GENTLEMEN: Many justly profess to grow corn, fruit and vegetables to perfection in this latitude, yet the most

practical farmer or horticulturist may occasionally fail here, or anywhere else, to produce the cereals, fruits or vegetables, though they be adapted to his locality.

While we assert that celery can be grown to perfection in this latitude, we do not say that it is specially adapted to this climate, but we believe that enough late celery may be grown in Jasper county to supply all the markets in the State of Missouri with an abundance of this "tony" vegetable, but not so easily as apples or corn are produced; more certainly, however, having the facilities and skill backed up by persistent, careful labor.

WILL IT PAY?

"Celery is a vegetable not usually found on the tables of those who have a small salary." This fact limits the markets, for it must be an expensive article of diet, besides many know nothing about it. More than one ruralist has wonderingly asked me such questions as, "Is that a new way to raise parsnips?" "What part do you use, the tops or the roots?" etc., etc. And yet our community has a goodly number of wealthy and intelligent citizens who will have celery though they pay a high price for an article shipped a long distance, and consequently of an inferior quality to that which may be grown here, cheaper and in abundance with irrigation, which is possible, as our numerous springs and shallow wells, with the application of cheap power pumps may be utilized, enabling the enterprising gardener to overcome the difficulties sometimes presented by a dry season. And possibly our larger streams may be controlled and irrigation on an extensive scale, cause our valleys to produce not alone celery, but cabbage, early and late; also potatoes, which we frequently obtain from northern states at great expense. Thus we may by irrigation save to ourselves and our community the large sums of money annually sent forever far away for these productions more especially adapted to other States in the north.

You gentlemen will not deem this talk about irrigation a digression from the subject of celery raising. I assure you it is pertinent to the subject, and without it celery growing would be uncertain as a business, more so than that of most vegetables excepting cauliflower.

It is not within the scope of this article to detail the processes of celery culture, and I will only touch on a few important points referring you to Mr. Peter Henderson's writings on minor, though important details.

First, then, the raising of celery plants from seed is very difficult unless begun very early. But careful shading and watering will enable the seeds to germinate and grow, being planted as late as May and make good plants for setting out in July and August.

Second, do not set the crown or bud below the ground when transplanting, for irrigation or a heavy rain might wash earth over and smother it.

Third, do not attempt to bank up before the middle of September or better yet October 1st to 15th. It is impossible to have a fine flavored celery in hot weather, nor is it desirable, as the market for it is very inconsiderable until cool weather.

Finally, if you are robust in health and have the facilities as some of you may have, certainly in some degree, I advise you to try your hand at celery, as no talk of mine, no fine essay can teach so much or so impressively as experience does the observing, careful, painstaking man, and no other kind will succeed in horticultural pursuits or gardening.

Educate yourselves to raise celery and the people to use it, for it is very pleasant and medicinal, and the more it's raised and used the more profitable it will be. But be sure that you have the facilities, to wit: Very rich land and the means to irrigate, and don't be discouraged if you do not make money the first effort, for you may need to try again; don't undertake too much, but enough to make it interesting. Then if you persevere you will make "celery a success."

REPORT OF LINN COUNTY HORTICULTURAL SOCIETY.

BY JOS. GAMBLE, BROOKFIELD.

WHAT WAS DONE AND SAID AT THEIR JUNE MEETING.

The Linn County Horticultural Society met at Ziehr's Hall last Saturday, with President Crosby in the chair, and while the attendance

was not large most of the old and a number of new faces were present. The subject for discussion at this meeting was raspberries, and was opened by Mr. A. P. Swan, a prominent fruit raiser from Yellow Creek township. Mr. Swan finds the Tyler the earliest variety of raspberry raised by him—hardy, the berry jet black, productive and made first picking this year on the 9th of June. His Greggs are just commencing to ripen. The Souhegan ripens next to the Tyler—about six days later—not so productive as the Tyler. Doolittle is small, so far has done very little for him. Mammoth Cluster a good berry but superseded by the Tyler and Souhegan. Does not consider the Gregg entirely hardy. The Cuthbert, red, ripens about ten days after the Turner, is not so hardy but produces a large berry and bears as well. Thinks the Tyler the hardiest variety of all, and if he could have but one variety would choose them. Has heretofore planted seven feet by four, in future will plant closer. He presented some fine samples of the Souhegan, Tyler, Gregg and Turner, and a sample of the Doolittles, which were quite small—— Mr. Gamble said the Gregg did the best for him last year—the Hopkins this year. Thought for general planting the Gregg the best variety. Considered the Turner the best red berry, and thought it did best without cultivation. He also presented a fine sample of the Hopkins which is very productive this year. This variety is hardy and needs cultivation. He has raised this variety three years and this year's crop, the best, are a week earlier than the Gregg. He plants raspberries eight by four with a crop of early potatoes between the rows the first year—— Mr. Davis thought it best to run a smooth wire along the rows and tie the bushes to the wire—— Mr. Smith of Laclède thinks the Gregg the best raspberry. The Doolittle is always small and dry in this climate. He would plant six feet apart, not touch with plow and would mulch with straw, but thought the same amount of ground more profitable in strawberries—— Mr. Swan thought strawberries the better crop as far as profit was concerned—— Attention was called to the fact that while the strawberry market was frequently glutted the raspberry market has never yet been fully supplied—— Mr. Gamble thought raspberries fully as profitable a crop as strawberries—— Mr. Swan inquired if any one present had had any experience with the Shaffer raspberry—— Mr. Gamble stated that he had raised them for two years—this year's crop not yet ripe—— To vary the discussion Mr. Gamble presented a cucumber nineteen inches long—variety, London Green—which one member remarked, contained at least half a dozen cases of cholera morbus, while another member thought it could be raised profit-

ably on a farm, as the ordinary town lot would be entirely too small to raise more than a half dozen such encumbers ——— On motion blackberries, currants, cherries and plums—the best varieties, best methods of planting, cultivating, etc., was chosen as the subject of discussion at the next regular meeting which will be held on the last Saturday in July. Discussion to be opened by Joseph Gamble. On motion ladies invited to attend ——— Committee reported that Ziehr's Hall had been procured for the meetings of the society ——— Fruit raisers (and nearly all of our farmers and many of our town people raise more or less fruit, large and small) will find it not only interesting but profitable to become members of this society. We trust there will be a good attendance at the next meeting. The society extends a cordial invitation to all persons interested in fruit growing, whether members of the society or not to attend its meetings. ———Regular meetings will be held at Ziehr's Hall on the last Saturday of each month. The society contemplates holding a fruit show sometime this fall, if the idea meets with proper encouragement from citizens of the county.

HORTICULTURAL REPORT OF ANDREW COUNTY, MO., FOR THE YEAR 1886.

BY GOTTL. SEGESSEMAN, AMAZONIA.

The hard winter had bad influence on peaches, of which there was no crop, and the trees diminishing still more; on pears, small crop, trees in bloom drying up; on cherries and some kinds of plums, weakening trees and shortening crop; on raspberries and especially blackberries, the more tender kinds of which bringing only a small crop.

Strawberries a full crop, brought about seven and one-half cents above costs of packing, shipping and commission. In quart boxes they sold for two cents higher than in trays. The Crescent is so far the most profitable. There are better kinds, but lacking in yield. Black-

berries and raspberries had about the same price as strawberries. The former were much curtailed by drought: of the latter Shaffer's Colossal is decidedly the most profitable. Plums and cherries much sought for. Of grapes there was the heaviest crop since 1874, the dry atmosphere not permitting rot to set in. Sold at acceptable rates comparatively.

In spite of the drouth causing many apples to drop and to ripen prematurely, there was the biggest crop on record of this fruit, and of high quality, too: smooth, large, almost free of worms, only later on attacked by crickets, birds, bugs, etc., the wounds causing decay. Many farmers had 1,000 and 2,000 barrels to ship. Price somewhat lower than last year. The leadership of the Ben. Davis has been contested, many customers refusing to buy it, preferring Jonathan's and other kinds of better quality. Stark and Lawver are favorably received in the market. A goodly number of trees are planted every year, but peaches are neglected for their uncertainty.

CROP REPORT, BUCHANAN COUNTY.

REPORT BY J. MADINGER, ST. JOSEPH.

We have to report a good year for all varieties of fruit, except as to peaches and pears. The former proved an entire failure and the latter yielded but a very light crop, and the trees blighted badly.

Apples are the main reliance of the farmers in this county and the yield was above an average. The quality of the fruit is excellent, but some varieties are somewhat lacking in size, owing no doubt to the dry weather during a portion of the growing season and the unusual quantity of fruit on many of the trees. As near as can be estimated there have been shipped from this county this fall, as far as I can learn from shippers, six hundred car loads of apples, making one hundred and sixty barrels to the car in all 96,000 barrels or about 285,000 bushels, the price paid from 85 cents to \$1 per barrel.

Cherries did much better than usual. The "Early Richmond" yielded well, as did also the late "Morello;" some were fortunate enough to have a few "sweet" cherries.

The crop of plums was good, better than usual; but still the fruit suffered largely by the curculio. The Wild Goose variety seemed to do best of all.

In small fruits, the strawberries did well, as did also both raspberries and blackberries. Gooseberries were unusually fine, particularly the Houghton.

Grapes ripened very early and continued in good shipping condition for a long time. The yield was fine. The Concord was the principal variety, but most of those suited to this climate did well.

It is a difficult matter to estimate the crops of small fruits, or of grapes; but it is enough to say that they were all sufficiently remunerative to satisfy the growers and to encourage others to plant out largely in consequence of the good crops and good prices of this year.

JACOB MADINGER.

ST. JOSEPH, Mo., December 7, 1886.

FRIEND GOODMAN: Here I send you a short report. Am sorry that I cannot attend myself, but have not been feeling well ever since your fair this fall; feel somewhat better now. Hope you will have a good attendance. Would like to come down and flax you all with apples. Let us hear from you once in a while, and oblige yours.

My best wishes to all my old acquaintances and fruit growers.

Respectfully,

JACOB MADINGER.

REPORT BY J. H. LOGAN & SONS, NEVADA.

Mr. L. A. Goodman, Secretary Missouri State Horticultural Society:

DEAR SIR: Your notice informing me of the date of meeting of our society has been received some time ago; please accept my thanks for the same. I had thought that circumstances might be favorable

for me to be with you, but it seems that my work hinders me from attending, should like to have been with you. Not thinking that I could have added much of interest as a fruit grower as I am only a novice in the business, this being my first experience, coming here from Nebraska only three years ago.

I purchased forty acres of land within one mile of Nevada in the timber, with about thirty acres under cultivation and about three and one-fourth acres set in apple trees, in bearing. I commenced, shortly after my arrival in December, 1883, hauling barnyard manure from the city and hauled about 250 tons the first winter and put on ten acres of land. In the spring of 1884 I set out 700 one year old apple trees and 200 peach trees; set apple trees twenty-five feet apart each way, peach trees sixteen and one-half feet; also set 600 strawberry plants and 400 raspberry plants, and during the fall of 1884 I increased my strawberry patch to one acre and in the following spring to one acre more. My plants bore a good crop during the season of 1885, and in the fall of 1885 and 1886 I increased my strawberry patch to about five acres, and also set out in the spring of 1885 and 1886 six and one-half acres of raspberries. Our strawberries and raspberries bore a good and profitable crop during our past season. I estimate that I sold about seven thousand quarts of strawberries and about four thousand quarts of raspberries; price obtained for strawberries was from twenty cents, May 10 to 15, then from ten to eight and one-third cents per quart at retail during balance of season. None sold at less than eight and one-third cents at retail, the lowest price by the crate being \$1.50 for two dozen boxes. Our raspberries commenced ripening May 29, and we sold berries up to June 9; prices ran from twenty cents down to ten cents per quart at retail, \$1.75 being the lowest price by the case of two dozen quarts. We delivered berries all over the city sometimes making six trips per day. Consider this being a great advantage being close to a good market and shipping point.

After bearing season was over commenced to cultivate and clean out, then on September 1 commenced hauling barnyard manure from the city, and during two and one-half months calculate I hauled about 225 loads, and scattered lightly between the strawberry rows and am now hauling and covering the rows of plants lightly with manure. My plants are in matted rows four feet apart and about twelve to fourteen inches wide in the row; berries all set among the young apple and peach trees. Have now set near six acres in strawberries and seven acres in raspberries; plants are all looking well; kept them clean.

Have now growing about 2,400 apple trees, 400 peach trees and plum trees, most Wild Goose; apples mostly Ben Davis. Apples a light crop this season.

Expected to have set out two acres more strawberries the past fall, but weather being too dry prevented it; I set out about one acre, expect to put out two or four acres of strawberries in the spring, also four or five acres more raspberries. Our strawberries consist mostly of the following varieties: Miners, Crescent, Chas. Downing, Glendale, Sharpless, Capitol City and Jersey Queen. Raspberries: Souhegan (our best early bearing) and Gregg (the best late), also have the Centennial, Doolittle, Turner, Brandywine, Cuthbert and Reliance.

Will say that I estimate that I have put over 2,000 tons of barnyard manure on about thirty-two acres of ground, and still think it will pay well to keep on adding more manure. That I consider another item of great importance to anyone contemplating fruit growing, especially small fruit, a location near a city where manure can be procured. I also think from my little experience that timber land in southwest Missouri is the best adapted to fruit growing. This being my first attempt at the business, also my first attempt of making any report of my success or failure, I hope it may be looked up with a great deal of allowance. I expect to be benefited the greater from the successes and failures of others than from my own weaknesses. I should be pleased to make a more extended acquaintance with our fruit growing fraternity; will say here that our latch-string always hangs out, and would be pleased to have all interested in fruits visit our plantation and will always be as glad to impart any knowledge gained from experience as to receive instruction from others.

Hoping your meeting may be well attended and an interesting and instructive one to all, I take pleasure in submitting to you the above as the experience of a new beginner in the business.

Yours fraternally,

J. H. LOGAN & SONS.

REPORT ON ORCHARDS.

BY JOHN S. DRUMMONDS, NEW FLORENCE, MO.

Some of the orchards in this county are in very fine condition. There are a great many young orchards coming in that look very fine and promising, according to the treatment they received. Peach trees are in bad condition, the older trees being so badly injured they are of little use and but few young trees are planted. The prospect is that when another season comes for this fruit there will be no trees left to bear. The peach trees are going in winter quarters in good condition, however; I have no room to complain about the condition of my orchard, my older trees had a fine crop.

The Early Harvest is a fine apple. My Janeton trees were very full. I bought about 130 trees from Lionberger's, they are in fine condition. I broke up the ground early in the spring and planted corn among them, cultivated them well, this fall I looked over them for worms but none could be found.

My Green Gages have suffered severely from the winter. Last spring I built little fires among the trees and smoked the curculio. I kept it up for a long time, but when they were about grown they began to fall very bad. It is not an uncommon practice with many to set out a lot of young trees and sow small grain among them which the borers are ready to take advantage of.

We ought to have more local societies, and every paper should give a column for horticulture and by so doing information certainly could be had. All our valuable reports should be given to men who would be interested enough to read them. All our standard horticultural books ought to be brought before the public as much as possible. All information sent to me will be received with thanks.

CARTHAGE, JASPER COUNTY, Mo., Dec. 6, 1886.

L. A. Goodman, Westport, Mo.:

DEAR SIR—Having been requested by the Jasper County Horticultural Society to write a paper on horticulture, for the benefit of the State Horticultural Society. In obedience to that request I will say that, as the apple is one of the oldest fruits known to man, it would appear to be presumption on my part to pretend to improve upon anything that has already been said and written on the subject of the culture and management of the apple orchard. But, nevertheless, I will give you my experience.

In the first place the soil should be suitable to the growth of the apple tree, of which southwest Missouri has an abundance. It should be high and dry rolling land, and if possible, well protected by a grove of timber on the north and west from the severe and cold winds coming from that direction. The land should be in a good state of cultivation before the trees are planted. They should be planted at least 30 feet apart each way.

The land and trees should be well cultivated each year, corn and potatoes are good crops to plant in young orchards. The trees should be carefully pruned and kept in shape from the time of planting; never letting a crooked or cross limb get too large before it is removed. Avoid planting and raising forked trees, as they will be sure to split when the tree bears a full crop of fruit. Don't plant too many varieties but plant the best and most profitable kinds. It is a good plan to wash the trees with strong soapsuds as often as twice a year, say in May and then again in August; the washing will destroy all the eggs that the apple tree borer may have deposited on the bark of the trees. The soapsuds gives the bark of the tree a smooth and healthy appearance.

The past summer was a very dry one in this part of the State, and the apple trees that were planted last spring made a very poor growth, but trees that were planted in the spring of 1885 have grown nicely during the summer, notwithstanding the long and extreme drouth.

The apple crop of this year has been a fair one. A great many apples have been shipped from here this fall.

JOHN HORNBACK.

CARTHAGE, MO., December 2, 1886.

To the Members of the Missouri State Horticultural Society, Lexington, Missouri:

DEAR BRETHREN—It would give me great pleasure to be with you at your annual gathering, but a combination of circumstances keeps me away.

Our long continued drouth with pretty hard freezing is hard on all our small fruits, especially strawberries. They made but few runners in the fall and consequently will stand thin in the rows. Our crop the past season was rather lighter than usual, doubtless on account of the being too thick to stand the severe drouth. My experience is that the thinner the plants are in hills or rows either, the better they will stand the drouth in fruiting time, and if we could always tell when the dry season is coming we could always have good crops of berries. I believe in plenty of manure and thorough cultivation for strawberries, and here I will enter my protest against what is called the easy or lazy man's way of raising strawberries. It has had a great tendency to demoralize horticulture and I blame some of our nurserymen, for in their eagerness to sell plants, they are too apt to make it appear that anyone can raise fine crops of berries, if they will only set out the plants. Now my view of horticulture is that it is a business of itself, and requires theory, skill and practice combined, with more of practice than any thing else; whatever is worth doing at all is worth doing right. The idea of a man setting five or ten acres in small fruits and cultivate and care for it at odd spells when he has nothing else to do on his farm, is simply preposterous and should be discouraged, raising not only enough weed and foul grasses to seed his own land, but to be drifted by the winds all over the community. Such a man, and we have many of them, should be frowned down when they come into the meetings of the horticultural society. No, what we want is thorough cultivation, allow nothing to grow but what is useful and I think raising small fruits will pay.

I am now cultivating but five varieties of strawberries, namely: Charles Downing, Crescent Seedling, Miners Prolific, Boydens No. 30 and Bidwell. Downing rusts some; Crescent, my stand by; Miners, for showy fruit; Boyden, for home use and especial friends; Bidwell, for early.

As for Raspberries I have the Sonhegan for early, so as to get the big prices; and then the Hopkins for its wonderful prolificness as an intermediate; then the Gregg, as we sometimes say, for our main

crop. As for Red berries give me the Cathbert and old Turner. The Kittitinnny blackberry does splendid with me, never yet a sign of rust on my place, big crops every year, and such fruit too, that always has a ready sale in our market. Snyder is too small when the Kittitinnny is about. Am waiting patiently for the fruiting of the Early Harvest which I expect this next season. Ah, but it is, I fear, a little doubtful, it is such a shy grower with me at any rate, but we will wait and see before we condemn too strong.

Peach trees made a wonderful growth notwithstanding the drouth, and old prophets say we will have a crop of peaches. Hope they are right this time.

Now, in conclusion, let me say so as to be understood, I believe that Missonri is capable of producing a greater variety of choice standard fruits than any other State in the Union, and that our soil wil respond to earnest, diligent, cultivation better than I know of elsewhere. But away with slovenly horticulture. Ours is a noble calling let us not disgrace it.

E. J. KING.

NEW HAVEN, Mo., Dec. 6, 1886.

To the Horticultural Society of Missouri, Mr. President, Secretary, Ladies and Gentlemen:

As I cannot meet with you on account of sore eyes, I thought something from Franklin county might interest some of you.

THE FRUIT CROPS OF FRANKLIN COUNTY FOR THE YEAR 1886.

Apples—Janeton, Jonathan, Winesap, Ben. Davis, White Winter Pearmain, Early Harvest, Red June, Maiden Blush, Grimes Golden Pippin was a full or rather over crop. White Bellflower, Rambo, Keswick Codlin, etc., are about three-fourths of a crop.

Pears—A fair crop. The best variety for this county is Keiffer's Hybrid, La Conte, Duchess, Bartlett and Seckle never fail to bear.

Cherry—Early Richmond, Gov. Wood and Elton are the favorite of this county.

Plums—Wild Goose is about all that is planted.

Peaches—Played out. Small fruits. There is but little attention paid to small fruit.

We have some fine new varieties of apples in this county. First is the Larimore, a native of Franklin county, it is very large bright

and very handsome. Fine flavor, sub acid. Season July 15 to October 15; considered one of the best. The tree is a fine grower, straight up, right large at two year old. Second, the Ben Maupin, winter, resembles the Ben Davis, much better flavor, better keeper and is as large; tree iron clad; the hardest winter does not hurt them; rather rough and much like a wild crab; considered by those who have tried them as the best of winter apples. Both of the splendid new apples are propagated and sold by J. Bagby & Son, New Haven, Mo.

There is but little interest taken in fruit in this county, so little that there is not a horticultural society in the county. I have talked to several about organizing a horticultural society, but they say we are too young yet. There is not enough interest taken to get the people to turn out. It is something that is greatly needed.

Respectfully yours,

J. A. TRAIL.

LONE TREE, MO., Nov. 12, 1886.

L. A. Goodman, Esqr., Westport, Mo.

DEAR SIR: As I am a new hand at the small fruit business and you requested me to give what little experience I have received. In the first place a man may read all papers and books, etc. on small fruits, and receive other theories, but when you come to put them into practice you are left. True it gives a person a better knowledge of what he has got to do. Second, my experience this year is not encouraging for a new beginner. Last fall, two years ago, I set out a small patch of Crescent and Captain Jack in my garden—two rods square—on the hill system, eighteen inches each way. I gave them extra care and cultivation. Kept all runners well trimmed and in the the fore part of winter, just when freezing begun, I mulched them, covering the ground about one and one-half inches deep; then, the following spring, I used liquid manure, when they were blossoming, twice a week, in the evening until the fruit was nearly full size. I kept the mulching around them and they averaged me one quart to the hill. This so stimulated me to go into the business of small fruits that I turned my attention that way and last fall set out one-half acre in Captain Jack's and Crescent and Manchester, setting them in rows two feet wide and twelve inches apart, and they made a splendid growth. I mulched last fall and when spring came I began to cultivate them. Then is when the fun began. I then found I had something to learn. I found I had them too close to cultivate; that for field culture

they must be not less than three or four feet apart. It would do very well to have them that close for hand culture, but that would be a slow and expensive undertaking. I did the best I could, but the weeds got the best of me and kept it. And as I had read a piece in the paper to mow the weeds and burn them, after fruiting, so I gathered what fruit they had, which was splendid considering the dry weather which cut it short. Now, thinks I, its my time; I'll mow the ground, then haul on straw and burn all off and when they come on take up every other row and plant them over. I got everything ready and watched for a time when I thought it was going to rain, and one afternoon there came up such a fine prospects for a good rain and I set fire and away went my berries, for it did not rain to wet the ground one-half inch; then the hot, dry weather continued and ruined my plantation. There were about three thousand came, the balance died. The burning process may do in an ordinary year, but it was a failure this year, at least, so it was to me. I plowed the ground all up and have begun anew, and have just got through putting out one-half acre more; would have set out two acres, but it has been too dry to risk so many plants, so will have to postpone it until next spring. Experience is sometimes a dear school, but fools profit by no other.

Now to raspberries. I set the following out last spring: Thwack, Turner and Cuthbert for red and Hopkins, Gregg and Mammoth Cluster for black; I set them seven feet and three feet in the row. I had ordered them early from the nursery, but got them so late that I did not set them out as early as I should have liked. Then it being so dry about one-half died, and I think they were before I put them out; at least I lost them, so now I advise any person setting out any kind of fruit to get their plants in the fall, as there are times one cannot get them as early in the spring as they would like.

My blackberries that I wrote you about, Kittitiny, did splendid this summer. If you had not advised me to let them remain, I should have plowed them up this spring, as I had them out three years and got no fruit from them; but the dry weather cut them short. For best crops of blackberries keep new growth, well trimmed back while growing. This causes them to branch out, and then the more branches and tops the larger the crop.

As to grapes, I put out one hundred Concords last spring and they have done splendid.

This has been a very bad season for all small fruit on account of the dry hot weather in this locality. Fruit of all kinds were not what

farmers thought there would be, as the dry weather caused the apple to drop before their time, and grapes dried on the vines.

Hoping you will excuse any and all mistakes, if they are not as they should be and as I am a new beginner. I should like to be with you at Lexington next month, as I then could learn more in a few days than I can at home in that many years. If I had not already made arrangements to go west I should have postponed until after the meeting.

Yours Respectfully,

FRANK J. SCHATZ,

Lone Tree, Mo.

BIRDS AND AGRICULTURE.

BY CLARKE IRVINE, OREGON.

So much has been written and published on about every subject of our deliberations that I often ask, why shall we attempt to say anything in addition unless we have new ideas.

The general government and several societies annually send forth countless volumes on agriculture, which includes in itself almost every art and science known to man. These works are gotten up in the very best style, and the subjects treated of are handled in a masterly manner, yet no one scarcely ever reads them. And this is our justification for continuing our own work. We may regard ourselves as interpreters of what has been previously given, as well as discoverers in our own especial lines. We are assuming no superior knowledge but simply calling attention and asking for co-operation, and in no country is such effort more necessary than in ours, for in no country is agriculture and other subjects in immediate and necessary connection with it so intellectually neglected and legislatively despised.

For this grandest of all subjects for study and objects of action to which the tongue of man has ever given a name, if we do a little we

boast we have done much ; and if we demand more, we are denounced as claiming all. The name agriculture in its wisest sense, or earth-working to procure wealth comprehends, I think, every act done by man to draw products from the earth. Fishing, lumbering and mining are incidental branches of it. It is the fundamental and capital business of life in these States. When it thrives it sends up life currents through all branches and departments of human activity, throbbing with health and vigor, to culminate in leaf, flower and fruit. Let it suffer under oppression and restriction and all the life of man in every department must languish and sicken. The generous earth gives a fair living to her cultivators, an abundance of all life's needs. The surplus product is the sole dependence, directly or indirectly, of the remaining populace, and of all our creations is most sensitive to restrictions on account of its perishing nature, the least able to sustain impositions because of the narrow profit of its production. And yet the average legislator is never so reckless as when he lays his heavy statute making hand upon the interests of agriculture. The world over he seems to despise it directly, and indirectly he hampers or defrauds it. The immortal author of "The History of Civilization" exclaims, after reviewing the course of legislation in Europe during some centuries: "The wonder is how civilization progressed at all," and asserts what history demonstrates, that about all the time of each succeeding parliament has been employed in undoing the evils of its predecessors by repealing their acts. And when the cry of alarmed cities is heard, and in populous districts, non-agricultural, where the hungry mouth is fed by the tired hand and "no work" means "no bread;" when the very earth shakes with the tread of enraged multitudes; if you remind this class of law-makers of the cause they merely shake their huge ears and reply: "Why, the agriculturists are not starving!"

But enough of preliminary. Our subject is one closely related to agriculture, and which only a few years ago would have been laughed at in that connection. I fear that in previous papers I have exhausted my limited knowledge of ornithology and will not be able to interest you in relating personal experiences. The works I have referred to prove the vast utility of birds to agriculture. I wonder will the time never come when the farmer who will not read and reflect on matters relating to his avocation will be as much laughed at as the merchant who can't count or the surgeon who can't handle tools? I know what that sodden sneer against book farming is. I see the dull eye that not one thing brightens but prospect of animal enjoyment, and the blank visage of him who utters it, and I know that he can not read and think

else he would never have said it. That he himself is not scratching the earth with a stick for a plow is solely because other men could read and think. They worked too, and while they worked they thought, and it is chiefly to have men think while they work that we would have them read.

No doubt it was some poetry reading plowman who first thought that birds were not created for boys to stone and rob their nests. He thought and he observed and then he wondered, but it was not until a long time had passed, while men were reading and thinking, ere one could write and publish boldly to the world such thoughts as these by Prof. Perkins, of Vermont. "Probably few persons are aware or have any idea of what might result if birds were all destroyed and other things remained as they are." In Vermont alone are some 800 species of *Lepidopterous* insects [moths and butterflies] and in the United States 4,000.

But let us confine ourselves to it, if the number is 800 the increase would be like this; each female lays 350 eggs on the average, but say 300. Now say in 1881 there is but one pair of each species—this would make 300 times 800, equals 240,000 eggs, developing into as many caterpillars. If half are females, next year would give us 120,000 pair, whose product for 1882 would be thirty-six millions. Thus, in five years, we shall have one quadrillion, 215 trillions, or 200 millions of caterpillars per one acre in Vermont, (all these in the fifth year from one pair of each). And each pair is here supposed to reproduce but one time per year, whereas several do so often, I think, continues Prof. Perkins, "as it now is, not one egg in thousands ever reaches maturity, and the great agent of destruction is the bird. If there is a race of beings on this earth that should be protected, it is the birds. Vengeance swift and terrible descends on those who will not learn that they are necessary to all agricultural pursuits." Thus far speaks Prof. Perkins: But not only he, all authorities who have observed, and have studied cause and effect here, say the same. These assertions are the result of long, profound and close observation. Knowing this, how shall we regard those town loafers who sneak along the by-ways, gun on shoulder ready to blow the life out of any feathered friend of man they chance to see. I have known men of this kind—men who seemed never to do one useful act, whose very calling was a daily injury to these fellows, and whose highest pleasure was in bird hunting. Strange contradictions in human life, while some are doing good at all times both when working or playing, there are others whose very business is a curse to man

and brute and whose highest sport is bloody destruction to harmless feathered songsters.

Now we have a law in Missouri and a good one to protect game and birds. All it needs is a strict enforcement, this will intimidate the heartless and educate the thoughtless. This society can do much by calling attention through the press. I understand the law requires the judges to give it in charge to grand jurors each term of their courts.

Let us take a hasty glance at some of the birds most useful according to authorities.

All night birds are eminently beneficial. Owls and night-hawks destroy multitudes of mice and young rabbits. Indeed, but for some such destroying agents, the rabbits alone would increase beyond power of calculation. Mr. Samuels of Massachusetts writing a few years ago, remarks of the whipporwill, "they subsist almost entirely on moths, which they destroy in great numbers. He adds that, in some parts of the United States an absurd notion prevails, that if a whipporwill sings around the door of a dwelling it forewarns the death of some member of the family, and this has caused the destruction of multitudes of these most useful birds; and that it is incredible to what an extent this absurd idea is carried. Any wide-spread belief instead of being sneered at or laughed at should be investigated. The absurd idea is more general than I had supposed. So far as my observation goes the whipporwill is a very shy, wild, retiring bird. Yet it may have such strange locality, as phrenologists call it, that, having once laid an egg there or thereabouts 'twill stick. Multitudes of these birds are within my hearing of moonlight nights, and have been for almost 20 years, during their season and yet I have never had a sight of but one, that one some few years ago nested in a near neighbors house yard, and persisted in staying there and singing for some weeks, in spite of many efforts made to drive it away by the resident Mr. W. R. Springer. Strange to say, his little boy, soon after the bird appeared there, sickened and died, although it is one of the healthiest neighborhoods in the world, and no other disease was there prevailing. This one thing has forever confirmed the superstition in some minds, farther investigation may prove to us that it is a very common thing for these birds to nest near houses and thus do away with a very strange superstition. It perhaps rests on the well known fallacy of logic—[Post Hoc, Propter Hoc], a fallacy that secretly rules mankind, namely, that because a thing happened after another thing the first thing caused it.

The yellow and black-billed cuculidæ and all wood-pecking birds rank among the most useful. They destroy billions of caterpillars and tree borers. These can not be too much encouraged.

Observers say that, excepting diurnal birds of prey, there is not a bird among our native species but is useful to man. The English sparrow must be exterminated, it is folly to defend it, I could find thousands who have watched it closely, who will swear that it drives away about all other birds; they war with all but themselves. In warfare they are the most cunning and merciless of all feathered tribes. Let them alone and they are almost under foot, just attack them once and they are silent, suspicious, but ever at work.

The so-called cat bird is beyond doubt one of the most very useful of birds. I have known a few pairs to rid several acres of apple orchards of the tent caterpillar. They are passionately fond of the little common sour cherry, and will be attracted by a few such trees. Our best authorities, indeed all, place this bird high on the list of our friends.

In order to set at rest questions as to the food of birds many kinds have been killed and the stomach contents carefully examined. From reports, after investigations made time and again, we find that chimney swallows, night-hawks and whippoorwills, are immense consumers of moths and other night flying insects. Bee martins are enormous consumers of insects, beetles, grasshoppers and maybugs. In the south they have been seen destroying the moth of the cotton ball worm. The peewee has been found, during the season full of the striped bugs so injurious to vines.

Thrushes and robins while destroying some fruit are greedy consumers of insects and larva destructive to crops. A blue bird shot in a town in March was found full of grasshoppers while not one hopper could be found by men and boys looking for them, in the neighborhood. Scarlet tanagers and black-winged summer red birds were found to have consumed largely of curculios; if encouraged, they might do much to rid us of that pest. The house-wren consumes cut-worms and lives much like the blue bird. Of several quail the stomachs of each were found to contain on the average one cut-worm, 20 vine bugs, 100 chinch bugs and a mass of hundreds of chinch bugs. I object most decidedly to the destruction of our bob whites or quails, they are never too plentiful. During the visitation of locusts some years ago, it was said those beautiful, graceful little creatures, the quails would have rendered invaluable aid in suppressing that plague had they been introduced in the original home of the locusts; the melodious whistle of one of these birds in the outskirts of a village is like a call to arms for every idle lout that can borrow a gun. I would recommend to every land owner to sternly prohibit all hunting and trapping for quails over his premises.

Some years ago a writer in one of the annual agricultural reports published by the United States, as early as 1862, (prior to the first invasion by the Rocky Mountain locust) speaking generally on matters vital to agriculture, made the remark that the farmers of Pennsylvania and other Eastern States, if they only knew it, have in their fields and meadows species of vermin or insects that might, on some occasion, after the causes that tend to hold things in equilibrium have been destroyed, on a sudden multiply and rise up, seeking wider fields for subsistence and prove to be a curse as dire as ever the plagues of Egypt have been. At present they are generally harmless, being kept down by foes. Among other things he declared that several kinds of locusts were there, all confounded under the general name of grasshoppers. He actually described and delineated by an illustration the same red-legged locust, misnamed grasshopper, which, a few years later, fell upon us from the Rocky Mountains, and he showed that it belongs in the meadows of the Eastern States. Nothing, he remarked, but the wise provision of Providence restrains these from becoming a consuming curse. Two or three other varieties were included in same list as dangerous, and he gave instances of their breaking bounds and doing considerable damage some thirty or more years previously. Within a few years past, in some parts of the southwest, a fly whose constant habitat is somewhere along the coast of the Gulf of Mexico, and which is fatal to man and beast by its bite, has been known to increase and extend its ravages. In some parts of Europe, among some caves of the Hungarian Mountains, an insect—a small fly—has its home. Its sting or bite is fatal. It is supposed that certain birds feed upon the larvæ of this fly and keep them from multiplying.

Well, when we survey the whole field and learn by what enemies, seen and unseen, man is surrounded, and through what trials and fiery tribulations the race has emerged to its present state, we are bound to wonder that any of us are left to tell the tale. And when we learn that one of the chief friends to man's subsistence here is the charming, graceful little feathered being, shall we not acknowledge it?

CLARK IRVINE.

DISCUSSION.

Does the bird law protect the English Sparrow? If so, why not repeal it?

Mr. Patterson—This society should say something about the English Sparrow. It is declared generally to be a nuisance, and I think it.

would be well to have the legal protection removed. I would like to know how to rid our town of them, anyway.

Mr. Tenbner—Is the English Sparrow confined mostly to towns?

Mr. Goodman—They sometimes get numerous enough in the country to take a thirty-acre field of wheat in ten days.

Mr. Follett—They will eat anything.

Mr. Patterson—And they pick and damage a great deal more fruit than they eat. A Robin and some other birds will take a berry and eat the whole of it.

Mr. Follett—Make a motion to kill them.

Dr. Gordon—Does the law protect them?

Mr. Irvine—I think they would be included in the general law for the protection of birds.

Mr. Follett—I move that this society recommend the repeal of the law (if there be such a law) protecting the English Sparrow, and that a bounty be offered for its destruction. Passed.

DISEASES OF THE APPLE CAUSED BY FUNGI.

BY B. T. GALLOWAY, COLUMBIA, MO.

LADIES AND GENTLEMEN: As horticulturists you are doubtless interested in everything pertaining to the cultivation of fruits and flowers, and other products of the soil commonly known as garden vegetables. I might have selected any plant which man cultivates for food or ornament, and discussed its peculiar diseases caused by fungi. Many, if not all, of our cultivated plants are subject to the attacks of one or more species of parasitic fungi. The enemies of the apple are exceedingly numerous; so numerous in fact that we have often wondered how good fruit could be produced under the circumstances.

No part of the plant escapes the ravages of these pests; roots, stem, branches, leaves, flowers and seed are alike attacked. More than

one hundred species of insects attack different parts of this one plant. When we come to consider the diseases caused by fungi, it is somewhat difficult to estimate the amount of damage caused by the ravages of these pests. It is also difficult to estimate the number of species which cause the various diseases of the apple. Of course we do not pretend to say that all the diseases to which an apple tree is subject are caused by fungi. It would be just as sensible to say that all the diseases to which man is subject are caused by the members of a certain class of parasites.

When we speak of a plant being diseased, we mean that the vital functions of that plant are not acting in a normal way. In fact, a disease is a derangement of the vital functions, and this derangement may be caused by an over amount of stimulating food which the plant receives. Or, if the plant cannot obtain a sufficient quantity of food, disease will follow. Excessive cold or heat will in the end produce that derangement of the vital functions which we call disease.

The study of the minute parasite we call fungi, in their relation to the diseases of plants, is attracting considerable attention. There can be no doubt that the yearly loss to our crops occasioned by fungi is something enormous. Take for example, the fungus (*Phytophthora infestans*.) which causes the rot in potatoes. Frequently the ravages of this pest destroys forty per cent. of the entire potato crop.

Michigan annually produces about 900,000 bushels of potatoes. Last year about one-third of the crop was destroyed by the fungus *Phytophthora infestans*.

Several botanists in different parts of the country are devoting all of their time to the study of the fungi. Col. Colman, our present commissioner of Agriculture, has lately appointed a botanist to a position where he can devote all of his time to the study of plant diseases. Thus the work goes on; new species are described almost daily, and we are constantly learning more of the habits of the old species. During the present year I have collected fourteen new species within the borders of our own State; several of which are quite destructive.

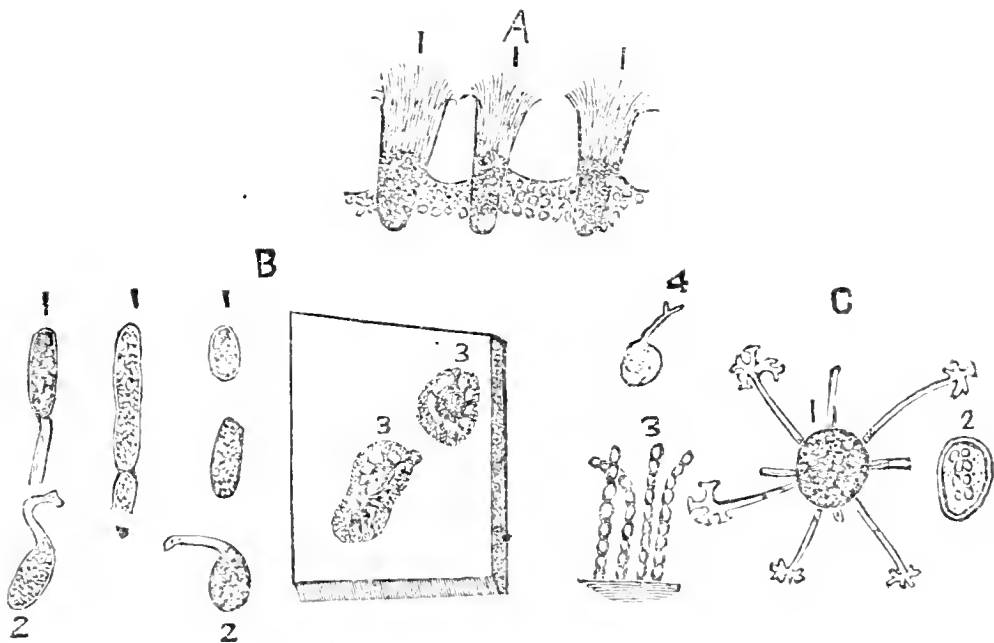
It must be borne in mind that fungi are true plants. They never originate spontaneously, but each species owes its existence to a parent. They live, grow, produce bodies analogous to the seed of higher plants and finally die. Many species of fungi live upon dead or decaying matter. Such species are known as *Saprophytes*. Parasitic fungi are those which obtain their food from the living plants, living and growing at the expense of the vitality of the host or supporting plant, frequently destroying the very plants which furnish us with food.

We will now briefly describe several of the parasitic fungi which attack the apple, and the first species is known to botanists as

ROESTELIA PENICILLATA.

This fungus belongs to the order *Uredineae*, and its life history is both interesting and peculiar. This fungus is very common in most of the eastern States, but it rarely attacks cultivated apple trees in this section of the country. The fungus occurs very abundantly, however, on the leaves of the wild crab apple, and occasionally attacks the cultivated apple. This species attacks the apple leaf, producing circular spots in the leaf. The spots are usually one-fourth of an inch in diameter, but they vary exceedingly in size and shape. Frequently the spots are so numerous that the entire leaf is twisted and distorted by the growth of the fungus. The color of the spot is reddish yellow, and the outer edge is usually colored dark brown. Occasionally the spots are sterile; which means that nothing is visible but the colored spot described above.

Frequently, however, we find the epidermis on the underside of the leaf ruptured, and a cup shaped body protruding therefrom. (A. Figure 1.) The margin of the cups ultimately become deeply split and fringed,



A. *Roestelia*, section through leaf of Hawthorn, showing cups 1, 1, 1.

B. *Fusicladium dendriticum*. 1, 1, 1, spores of fungus. 2, 2, spores germinating. 3, 3, part of apple showing spots natural size. 1, 1, 1, 2, 2, highly magnified.

C. *Podospheea tridactyla*. 1, Ripe perithecium. 2, ascus containing spores. 3, tuft of conidia spores. 4, conidium germinating. 1, 2, 3, highly magnified.

which imparts a curious appearance. A portion of the cup is buried in the tissue of the leaf, while the open end protrudes through the ruptured epidermis of the host. The cups contains the spores or reproductive bodies of the fungus. The spores are orange colored, globular bodies and are formed in vertical chains or rows. When mature, the slightest touch destroys the bead-like arrangement of the spores and they escape from the cup. The spores are less than one-three-hundredth of an inch in diameter, and being very light, they are easily wafted from place to place by the wind and other agents.

The spots on the apple leaf usually appear about the middle of May or the first of June and the first mature reproductive bodies escape about the first of July. One would naturally suppose that the spores of this fungus would germinate on the apple and ultimately produce the same kind of spots from which they were derived. But as a matter of fact it is known that when the spores fall upon apple leaves they produce no effect. If, however, some of the spores fall upon the young branches of the common red cedar (*Juniperus Virginiana*) and the proper conditions of moisture and temperature are present they germinate, and give rise to a fungus on the red cedar, differing in many respects from the form on the apple. When the spores from the apple leaf germinate upon red cedar, a mass of threads (*mycelium*) is produced in the tissues near where the spores germinated. The mycelium continues growing through the summer months and ultimately produces globular, or kidney-shaped knots on the young branches of the host.

During the summer and winter months the knots remain hard and wart-like, and show very little structure. The globular swelling on the young branches of the red cedar, are commonly known as cedar apples, and if you will examine one of them you will find a number of spots on the surface. Early in spring, especially during damp weather, long cylindrical masses of a jelly-like substance protrude from the spots mentioned above. These masses are frequently an inch in length. Usually a number of the cylindrical masses escape from each swelling, and the are usually aggregated in a somewhat globular tuft.

The spores or reproductive bodies of this fungus are imbedded in the jelly-like masses, and are supported on long, slender stalks or pedicels. The spores are two-celled, generally constricted at the partition, and vary in size and shape. They are usually about one three-hundredths of an inch in diameter, and one-hundredth of an inch long. Like the masses of jelly, the spores are colored bright yellow. Doubtless

every one has noticed the bright yellow masses which are very common in early spring on the red cedar.

The spores are discharged from the cedar apples about the middle of April, and when they fall upon the proper host (cultivated apple or crab apple) and the proper conditions of moisture and temperature are present, they germinate and give rise to the reddish spots already described.

Thus we have a fungus occurring in its first stage on the red cedar, and producing jelly-like masses known as cedar apples. The spores that are discharged from the cedar apples will, under certain conditions, give rise to a fungus on the apple-leaf, which differs in many respects from the fungus on red cedar. The spores from the apple leaf fungus in turn fall upon the red cedar, germinate, and give rise to the cedar-balls. It has been shown by careful experiments that the above facts are true. Artificial sowings of the spores from the cedar apples have been made, which in due time gave rise to the second stage of the fungus.

The only practical remedy we can suggest is to collect and destroy the cedar apples before the spores are dispersed. Or, if the cedar apples are very abundant, destroy the worthless red cedars. There is one thing, however, which must be borne in mind, and that is, we frequently have this fungus occurring on the wild crab apple in localities where there are no red cedars; but the fungus in such localities is never very destructive. The only explanation we can give as to the probable cause of such a phenomenon, is that the fungus has the power of propagating itself by some means unknown to us.

One of the most destructive parasites which attacks the apple is known to botanists as

FUSICLADIUM DENDRITICUM.

This fungus causes the disease commonly known as scab. Doubtless every fruit grower is familiar with the work of this pest. This fungus attacks the leaves and fruit, and frequently the tips of the young shoots. The scabby spots which occur on the fruit are usually more or less circular (B Fig. 3-3) and are at first quite small. But the spots gradually increase in size, and ultimately the fungus in the central part of the spots dies and the living fungus is only found at the outer edge of the spot. The plant body of this fungus consists of minute branching threads, which are usually colorless. The threads never penetrate deeply, but grow just beneath the epidermis of the

host. These threads send up an immense number of short, colored branches, upon the ends of which the spores (B. Figs. 1-1-1) or reproductive bodies are borne. The spores are dark brown and vary exceedingly in size and shape. They are usually one-celled, but occasionally are divided by several transverse partitions. The fungus is found beneath the epidermis of the host, and when it has attained sufficient size it ruptures the thin skin which covers it and the exposed spores and threads form the brown, velvety spots described above.

This fungus usually appears early in the spring, soon after the blossoms fall; and the spores or reproductive bodies are found throughout the summer and germinate whenever the proper conditions of moisture and temperature are present. The fungus is never very active during hot weather, but at the approach of cold, dany weather, the spots rapidly increase in size.

A well known fruit grower writes as follows: "This parasite of the apple prevails in its greatest abundance in years, having at the time of leafing out and blossoming, weather just adapted to its nature. It is best fostered in germination and development by cold, wet weather. A snow storm at blossoming time makes a year of uncommon abundance of scab."

The fungus usually forms on young fruit during the prevalence of wet weather, and seemingly this condition of the weather supplies the conditions necessary for the germination of the spores.

Some varieties of apples are not subject to the attacks of this fungus, while other varieties are rarely free from spots. Those nearly exempt are:

Russett, Nonsuch, Seek-no-further, Astrachan, Baldwin, Smith's Cider and Jeniton.

Those subject to the disease are:

Early Harvest' Rambo, Fall Pippin' Rhode Island Greening, Spitzenburg and Twenty-Ounce Pippin.

Several remedies for this disease have been used with success. The ordinary kerosene emulsion, which is used for destroying insects, is recommended for destroying the spores of this fungus. The emulsion is made as follows: Take kerosene, two gallons, soap, one-half pound, water, one gallon. Heat the solution of soap and add it boiling hot to the kerosene, churn the mixture for ten minutes or until a perfect emulsion is formed. Dilute before using, one part of emulsion to nine parts of water.

Prof. Burrill, of Illinois, recommends this remedy, and says the most favorable time to use it is in the winter when the leaves are off,

and the applications should be made to the young wood. Prof. Burrill suggests first pruning away the young wood, especially that most affected, then syringing the tree with the dilute emulsion. This emulsion destroys the spores of the fungus, but does not injure the tree. Prof. Sanders, (Canadian Horticulturist) suggests the following remedies:

First—Hyposulphite of soda one pound, water ten gallons, apply with force pump just before the leaves appear, or when the fruit first forms.

Second—One pound of sulphur suspended in fifteen gallons of water. Apply same as number one. Constant stirring is necessary to keep the sulphur suspended. Lime water has also been used with success. It should be applied with syringe or force pump soon after the young fruit forms and at intervals throughout the summer.

The leaves of young apple trees are frequently attacked by a fungus which covers the leaves with a dirty white coating. This fungus grows upon the surface of the host and the plant body, consists of long-branching cob-web-like threads, which attach themselves to the host or supporting plant by means of suckers, which form on the side of the thread next to the leaf.

This fungus is known to botanists as *Podosphæra tridactyla*, and it occurs on several plants belonging to the Rose family. It appears about the middle of June, and soon the cob-web-like threads send up number of vertical branches. They are at first entire, but ultimately they are divided by several transverse partitions. Gradually the threads become constricted at the partitions, until we ultimately have formed a number of globular bodies arranged like beads on a string (C. Fig. 3). The globular bodies are known as *conidia*, and whenever the proper conditions of moisture and temperature are present the *conidia* germinate and give rise to the same kind of cob-web-like threads from which they were derived. These threads in turn produce another crop of *conidia* which in turn germinate and produce threads. This process continues through the summer months, until the parts of the host attacked is covered with the cob-web-like threads.

Late in the fall another kind of productive body is formed which is commonly called the winter spore or resting spore. The *conidia* are destroyed by frost, but the resting spores fall to the ground with the leaf, live through the winter, and germinate the following spring. The spores are contained in a flask-shaped sack called an *ascus* (C. Fig. 2), and the *ascus* is protected by a thick wall, and which is usually colored black or dark brown. The whole forms a more or less globular body

known as a *perithecium*. (C. Fig. 1.) These are quite small and appear to the naked eye as mere dots not larger than the point of a pin. The winter spores rarely occur on the apple, but they are abundantly produced on the cherry and quince and several related plants. As stated above, the winter spores germinate in the spring and give rise to the white threads which in turn give rise to the *conidia* or summer spores. This fungus is superficial and for all such species sulphur is the best known remedy. It should be applied in solution as recommended for scab or by dusting the powder on the leaves when the dew is on.

Another fungus known to botanists as *odium fructigenum*, occasionally attacks the apple. This fungus also attacks plums and cherries, and causes a kind of dry rot. The plant body of the fungus consists of minute branching threads which penetrate the tissue of the host, causing it to decay. The growth of the fungus continues after the fruit has been gathered. The one-celled spores are produced in chains, and they form small mealy tufts on the surface of the host. The spores readily germinate whenever the proper conditions of moisture and temperature are present. Prof. Peck, of New York, says: "The spores do not effect the fruit when planted on the uninjured skin or rind. When planted on the freshly exposed flesh they germinate most readily, and reproduce themselves in about three days."

There are several additional species which frequently attack the apple, but the injury they cause is comparatively insignificant. During the past summer many of the apple trees in the southern part of the State were destroyed by blight. The leaves and young branches turned black, and appeared as if they had been scorched.

I have seen none of the affected trees, but judging from information received from various fruit growers living in that section, this blight of the apple and the well-known pear blight are identical. I have now briefly described several of the common species which attack the apple, and in conclusion, urge you to study the habits of these interesting parasites. Send me specimens of any injurious species you may find in your locality, and I will gladly aid you, if possible. I thank you for your attention.

More than fifty kinds are known to affect the apple. The rust on the apple is remedied by the kerosene emulsion. Lime water has also been found useful.

During the year the college has collected some 300 species of fungi, fourteen of them new to science. We have also received 400 from other institutions, and these will enable us to identify more kinds in the future than we have been able to do in the past.

In reply to the question, the spores of the red rust are on the leaves during the winter or in the sod, though they might be stored in the cellar on the apple itself. The fungi also live on the bark of young trees.

I don't consider the cedar tree injurious in orchards. The fungus will grow on the apple where the red cedar is not known. This seems to show that the fungus has some other way of propagating itself. Kerosene emulsion will destroy the spores. Burning the leaves will be of great use, in that way you destroy a great many of the spores. They fall in the way as dust, being very small, about one-six hundredth of an inch in diameter. This fungus is usually terminated in hot weather. A snow at blooming time is favorable to its development.

Mr. Speer.—Two years ago we had a snow storm at blooming times and the rust was very bad that year, many apples being scabby.

Mr. Tracy.—Rust is quite rare in the west. In the eastern States it is very troublesome. Some orchards have been destroyed by this red rust where the orchards were surrounded by cedar wind-breaks. This is known to be the fact in several cases. I think the red rust is dangerous. The cedar apples may be easily gathered from the trees and the spores destroyed.

Mr. Lionberger.—The scab is getting worse. Would it not be well to confine ourselves to varieties not subject to this disease? I can name no variety entirely exempt but some are worse injured than others.

Mr. Galloway.—I think the disease may be hereditary. Some individuals are less subject to scab than others and we should propagate from those most exempt.

Mr. Murry.—Winesaps now scab so badly with us that we are ready to abandon it; thought it was not scabby much two years ago. I am satisfied that none are entirely exempt. Ben Davis was more exempt than any other. The Winsap was very fine this year.

Mr. Erans.—Has anyone anything to say about potato rot?

Mr. Murry.—We find those dug early rotted, those dug later not much better. Those dug early and kept cool did better. Those in a warm place rotted. Those nearest the surface of the ground were almost all bad. Places covered with weeds or something else that shaded the ground did not rot. Morning glories saved one thousand bushels for one man. He had very little rot.

Mr. Galloway.—A number of diseases cause rot in the potato. Rot in the potato, rust in the apple and mildew in the grape are all fungi of the same order. The grape does not rot when protected from mois-

ture. Perhaps the morning glories protected the potatoes from moisture of light rains and dews.

Mr. Durkes.—Potatoes on northern slopes rotted but little.

Mr. Tracy.—The rot propagates by means of spores which will germinate in a few hours. A half day will give you the second generation. None of them can germinate without moisture. So long as they are kept dry they are entirely harmless. The more vigorous the potato the less liable they are to the rot. The spores germinate more rapidly upon heated or weakened potatoes. Heated potatoes near the surface of the ground are wet by a heavy dew and are liable to rot. The rot attacks the potato by the eye, and rarely penetrates deeper than the skin. When that is destroyed the potato decays from other causes. Where potatoes are rotting badly the stem sometimes appears velvety as if covered with a light frost. Vigorous growth in the plant is one of the best preventives. There is no adequate remedy.

Mr. Speer.—Is it safe for us to plant apparently sound potatoes from last year's crop which rotted badly?

Prof. Tracy.—I think it will make but little difference. The spores are all over the country and are ready to grow when the conditions are favorable. Vigorous growth will do more than any other one thing to prevent disease. A cool climate is also favorable. The spores will germinate on the tuber or on the stem and then run down to the tuber. When it germinates in the cellar the spores must have been upon the tuber before it was taken into the cellar.

Prof. Osborn.—This season I have had experience in two States, Missouri and Kansas, with potatoes. In Missouri they were worthless from the rot. I think it owing to the fact that the vitality was sapped by the excessive heat. In Kansas we had the drouth also, but I had a large crop of prairie hay with which we mulched the potatoes five or six inches deep. We had a fine crop, the mulch saving the moisture and protecting them from the great heat. Some of us are old enough to remember the potato famine in Ireland, when the crop from year to year was a total failure. I think the cause was the degenerate condition of the potato. We obviate the difficulty by going back to seed and getting new varieties, with new vigor, able to resist the disease. This teaches us the lesson that no one variety of potato will last for any great length of time; so it is necessary for us to keep growing new.

Mr. Ragan.—A great potato grower, who raised 40,000 or 50,000 bushels said the Early Rose rotted worse than anything else, while

some of the newer varieties did not rot at all. The old varieties are deteriorating and we must go back to the seed and get new varieties.

Mr. President.—The Peach Blow is now one of the oldest varieties we have. It is also one of the most exempt from rot. We have one thousand bushels and there is not an unsound potato in the whole lot.

Mr. Teubner.—The Peach Blow is such a very late potato that it grows in the fall when the weather is cool and there is plenty of moisture. I think decay is prevented by early digging. One year I had one hundred and fifty bushels of White Star. I dug a few very early for the fair and after exhibiting them I stored them in a dry shed. The others staid in the ground very late. The season was hot and wet. By the middle of October I found one-third of those in the ground were rotten and the sound ones were rough and of poor quality. The early dug ones were mealy and nice as they could be. Since that time I have practiced digging them as soon as the vines commenced dying, not letting them get hot in the sun, but digging early in the morning and late in the evening.

Mr. Laughlin.—I had a very fine patch, planted late, well tended. I let them stay in the ground very late. After the first light frost I put them in the cellar and thought I was safe. In the last week I find one-fourth gone with rot, and going very fast. I will take them from the cellar and put them in pits mixed with dirt. I have the Early Rose, White Whipple and Beauty of Hebron.

Mr. Francis.—I remember a patch of potatoes that were fine. The river overflowed them for three days. They were dug shortly afterwards and there was not a sound potato in that part of the patch. I keep potatoes dry, harvest them soon after maturity, put them in graneries in the barn, cool, dark and dry. I have done this way for years. I have very little rot. The drier and cooler the place the better. They sprout in the cellar.

Mr. Follett.—I think it is a question of vitality, of breeding. We have the same thing with all manner of life. The same things that engenders scrofula in the human family will engender disease in the vegetable family.

Mr. Murray.—I have several times procured seed potatoes from the north. I find it increases my crop from thirty to fifty per cent. We are in too warm a latitude to maintain the full vigor of the Irish potato.

Mr. Laughlin.—I would like to have a cure for the potatoes now in the cellar.

Mr. Follett.—You can't cure them.

Mr. Galloway explained by blackboard illustrations the growth of the fungus which caused the rot and how it destroyed the substance of the potato. He said the spots of this fungus could not be killed by any direct application.

Question 1. Why do we destroy the enemies of the codling moth by trapping with bands?

Prof. Taft—Some of the enemies of the moth might be in the bands.

2. What is the best time of the year to cut elder, to exterminate it?

Mr. Gano—Dig them up by the roots any time in the year.

3. What is an effectual remedy for the cabbage worm?

Prof. Tracy—The coal oil emulsion.

Mr. Goodman—Pyrethrum.

4. Should pie plant be cut or pulled?

Answer—Pull the stalks, cutting, leaves the surface exposed and injures the plant more than pulling.

5. Should asparagus be pulled or cut above the ground?

Mr. Reihl—Immaterial.

6. Why does the Huntsman apple spot and scab worse than other sorts?

Mr. Speer—I would say it does not.

7. Does thickness of skin have anything to do with it?

Mr. Galloway—It does in the potato.

A resolution was adopted requesting county and local societies to take steps to organize societies in adjoining counties, and report at the next meeting of the society.

Mr. Follett wanted the members to report all facts about fruit growing and especially as to feeding apples to stock.

The following history of Huntsman's Favorite apple is handed in to the secretary:

John Huntsman settled two miles east of Lexington. An apple tree came up by a stump against his house. From this tree the original cions were taken by Mr. Wentworth, a nurseryman of Lexington, and grafted into his nursery and named Huntsman Favorite.

The following resolution was presented and adopted.

Resolved, That the county societies of the State be requested to make efforts for the organization of similar horticultural societies, aux-

illary to the State Society, in all their adjoining or contiguous counties during the coming year and report their respective success at our next annual meeting.

REPORT OF COMMITTEE ON SECRETARY'S REPORT.

Your committee to which were referred the report of the secretary, submits the following recommendations, viz.:

1. We deem the establishment of experiment stations in each State and Territory as provided for in the bill now before Congress, and known as the "Hatch Experiment Station Bill," a measure of the utmost importance for the furtherence of exact experimental work, and recommend that the society take appropriate action to further its adoption.

2. In the matter of the publication of our reports, your committee is unable to devise or recommend any plan further than that which has been followed since the organization of the society. Our State laws provide for annual reports only, and these are printed at the expense of the State. Should the society arrange for the publication of quarterly reports as suggested by the secretary, the entire expense of printing would have to be borne by the society, much additional labor would be placed upon the secretary and the reports, when published, would necessarily be so brief that they would not be so generally sought after and so highly valued as are the reports in their present form.

As we have seen at the present meeting the leading papers of the State have reporters present, who are ready and anxious to publish immediately all the important papers presented at any meeting, and in this way our best work is given to the public while still fresh and new.

3. Your committee recommends that all matters concerning the legal statutes of the society, and the securing of a sufficient appropriation for the State Legislature be referred to the Executive Committee, with full power to take such action as may seem best.

4. Your committee fully endorses the work of the secretary in collecting statistics in regard to the fruit crop of the State, and, if sufficient means can be provided, recommend that the work be carried on to as full an extent as possible.

5. Your committee recommend that the Executive Committee of this society is hereby authorized and directed to secure the services of some competent person to investigate the injuries to plants caused by parasitic fungi, and also to secure the services of some competent Entomologist. For the expense of these investigations an appropriation of five hundred dollars per annum from the funds of the society is recommended if it can be obtained from the legislature for that purpose.

Amended so as to leave with the Executive Committee.

6. Your committee recommends that this society send a delegate to the next meeting of the American Pomological Society, and also that one be appointed to represent this society at the meeting of the Iowa, Illinois, Indiana, Arkansas and Kansas State Horticultural Societies.

7. In the matter of the revision of the apple list, your committee recommends the appointment of a special committee who shall undertake the revision of the list, giving special attention to the date of ripening and selling season of each, this committee to report at our next annual meeting.

8. The appointment of a committee to provide rules for the government of the judges in our fruit exhibits, in order to secure uniformity of awards is recommended.

9. Your committee recommends that Article III, of the constitution of the society be so amended that their terms of office shall begin on the first day of June following their election. All of which is respectfully submitted.

S. M. TRACY,

Z. S. RAGAN,

Committee.

REPORT ON THE INSECTS INJURIOUS TO FRUITS IN MISSOURI, FOR THE SEASON OF 1886.

READ BY MISS IDA CRUME.

INSECTS INJURIOUS TO APPLES.

BY MISS MARY E. MURTFELDT, KIRKWOOD, MO.

As the apple is the standard and standby fruit of the civilized world, its insects enemies merit, and have received, special consideration from all economic entomologists.

My memoranda for the present season may therefore be appropriately introduced by a passing reference to, or a more extended description of some of the six-legged depredators on this fruit of fruits.

Prof. Lintner, in his very valuable first report on the insects of New York, enumerated one hundred and seventy-six species of insects that feed, either exclusively or in addition to other vegetation upon the apple tree. To this long list I could, from personal observation, add at least a half dozen more, and I am sorry to say that almost every tree that I saw during the past summer had the appearance of having been ravaged by the entire army.

It is true that the unthrifty foliage of the orchards and the general failure of the fruit crops in all the States bordering on the Mississippi river, were due in some measure to the unusual climatic conditions. The severity of the previous winter, the excessive rains of May and June and the protracted drouth and the extreme heat of July and August, could scarcely fail to produce very unequal development of both foliage and fruit, besides rendering the trees peculiarly susceptible to various fungus diseases. But, in addition to these, many of the most formidable of insect pests made their appearance in vast numbers and in uninterrupted succession. Scale insects and woolly aphis spread over the bark; borers excavated the roots and tunneled the wood; bugs and plant-lice rioted on the swelling buds, and, a little later, myr-

iads of canker-worms made their advent and were joined in their nocturnal banquets by climbing cut-worms and other caterpillars, and, when the fruit had set, there also was the ubiquitous codling moth to make good its claim to about seventy-five per cent. of the product. There may be orchards in Missouri from which a more encouraging report could be made, but the above is, I believe, the average entomological history of the apple tree in this State for the season of 1886. What wonder then that our bins and barrels are already empty, or but scantily filled with small and flavorless specimens of the poorer varieties?

There are but few new facts to offer in the history of any of these well-known pests. The only point of practical importance to be insisted on is the application of remedies either prophylactic or directly destructive.

APPLE TREE BORERS.

For borers in the trunk the best preventive application is soft soap, made into a thin paste with soda or air slacked lime, and applied especially to the crotch of the tree and for a short distance up on the larger branches: the rains will wash it down far enough to protect the lower part of the trunk, and the beetles will not lay their eggs on bark thus coated. This should be put on in May or early in June.

Where the borers are already in the tree they may with time and patience be extracted with a knife or wire, but this is a tedious process and scarcely worth while, except in the case of some particular tree which the orchardist is anxious to save.

Nursery stock and young orchards occasionally suffer considerable injury from the attacks of the broad-necked *Prionus* (*Prionus laticollis*, Drury), an immense borer which works in the main roots, completely excavating them and often ascending some distance up into the trunk. The habits of this insect were briefly described to this society at the last annual meeting by Mr. Lionberger, for whom it had destroyed a large number of young trees. He had not at the time identified the grub with its perfect form, but in the course of the summer I received from him a full grown specimen which I at once recognized as the larva of the above named species. From a short account of it, which I published in Colman's Rural World of Nov. 4th, I copy the following paragraphs:

"The broad-necked *Prionus* was fully described and illustrated in Prof. Riley's first and second reports on the insects of Missouri. It

was then considered chiefly as a grape-root borer, but its frequent attacks on young apple trees and some other kinds of vegetation also mentioned.

"The larva in question is fitly described as 'gigantic'—a full grown specimen measuring three inches in length by nearly three-fourths inch in diameter, across the thoracic segments. It is of cream white color except the head, which is small, horny and dark brown. The first thoracic and the terminal joints are smooth and glassy, but the greater part of the surface is much wrinkled and pitted.

"The borer has never, so far as I am aware, been bred from the egg to maturity, but it is supposed to require about three years for its complete development. It works for the most part in larger roots, but occasionally bores through the collar and upwards into the trunk of the tree, completely excavating it and, of course, causing its speedy death. As this borer is capable of moving freely through the soil, it often passes from one tree to another, if the one first entered does not suffice for its sustenance. It attains its growth in the autumn of the second (?) year, passes the succeeding winter in a torpid state within a hollowed-out root, changes to pupa late in the following spring and the beetle makes its appearance early in July. The latter is among the largest of our long horned borers, the female measuring from one to one and a fourth inches in length and three-fifths inch in diameter. The male is often much smaller. The color is a shining brown-black throughout. The head is supplied with strong, pointed jaws and many pointed antennae of medium length. The thorax is sharply notched or toothed at the sides."

While there is no record of this species having been found in large living trees, Prof. Riley states that it breeds in decaying stumps and wood of forest trees, and advises not to plant orchards or vineyards on land on which any stumps have been suffered to remain. The only remedy that has been suggested is to kill the beetles and larvæ wherever found, or to make the attempt to attract the beetles to their destruction by means of bon-fires in summer in the vicinity of young orchards or nurseries in which this borer has been found.

THE CANKER WORM.

Among the leaf feeding apple tree pests the spring canker-worm (*Anisopteryx vernata*, Peck) is pre-eminent on account of its general distribution, its constant re-appearance and the difficulty of entirely eradicating it from an orchard in which it has obtained a foothold. This insect is too well known to need re-description here. How to

keep it in check is the only part of the subject that is worth while to consider in these notes.

Dr. Goslin, of Oregon, Mo., wrote me last spring that he kept his orchard free from it by spraying with Paris green or London purple in liquid suspension. There is no question that this is the best means of killing the worms, but the difficulty is that so few fruit growers will take the trouble and incur the expense of the apparatus and powders. There is likewise some danger in the handling of these poisons, and unless great care is used the tender foliage may be burned.

The most effective preventive measure is frequent and thorough stirring of the soil. Where the orchard is plowed and harrowed late in the autumn the pupæ are disturbed and exposed and a large proportion perish during the winter. Plowing every alternate year would serve to keep an orchard measurably, if not entirely free from them. If in addition to this, an application of some sticky substance, such as refuse molasses, coal tar, or printers' ink, be made very early in the spring, to each tree for the purpose of trapping the wingless female moths, the foliage of the trees can be tolerably well preserved without the use of insecticides.

THE CODLING MOTH.

What the canker worm is to the leaves of the apple the codling moth is to the fruit, only in a still greater degree of destructiveness. For this insect, also, no direct remedy has been found of greater value than the Paris green solution, in the ratio of one and one-half ounces of the green to five gallons of water, applied by means of a force pump, hose and one of the patent spraying nozzles advertised in our horticultural journals. This remedy should be first used when the apples have attained the size of a pea and are still erect on their pedicels, and other applications should be made at short intervals for several weeks. Prof. Forbes, State Entomologist of Illinois, in an exhaustive and valuable paper on the codling moth, records a series of careful experiments with Paris green, London purple and lime, with a view of determining their intrinsic and relative value. His conclusions on the subject are thus summarized: "That paris green will save to ripening at a probable expense of ten cents per tree, seven-tenths of the apples which must otherwise be conceded to the codling moth, that London purple will apparently save about one-fifth, and that the lime will save none."

The experiment was tried during a season when the apple crop was scant, following one in which there had been an abundant yield, in which the insect had bred excessively. Prof. Forbes cautions

those using the arsenical preparations against their application late in the season. as in an examination of apples, treated about the first of September, a dangerous amount of the green was found still to adhere to them when ripe, although they had been repeatedly washed by heavy rains. Of course, no domestic animals, not even chickens, could with safety be admitted to an orchard in which these insecticides were used. Some injury to the foliage is inevitable where the applications are frequent, and it is doubtful if trees, treated during successive seasons, would be very long lived. In view of these drawbacks on the best remedy yet known, we cannot conclude that the doom of the canker worm and codling moth is settled, and there is consequently still room for invention and discovery as to the best methods of preserving our orchards from their attacks.

THE PLUM CURCULIO.

Of stone fruits—speaking for a large section of the State, only the common red cherry and a few of the hardier plums yielded average crops; and for lack of the peach, sweet cherry, apricot, etc., the plum curculio was compelled to perpetuate its kind by means of fruits, which ordinarily it seldom injures to any extent. The Red cherry, however, swells too suddenly and is too juicy to suit the taste of the larvæ and I have seldom succeeded in rearing those found in this fruit.

A large proportion of the Wild goose and Chickasaw plums, which are generally almost exempt from attack, were stung and dropped from the tree; but although the larvæ seemed perfectly healthy in their development, I did not obtain a single beetle from a large number which I consigned to the rearing jar.

SMALL FRUITS.

Berries of all kinds yielded abundantly and there was no general complaint of insect destruction.

Strawberries in St. Louis county suffered considerably early in the season from cutworms and white grub, and later in the summer an unusually large proportion of the leaves were folded and turned brown by the strawberry Leaf-roller (*Phoxopterus comptana*, Frol.), an insect belonging to the family *Tortricidæ* of the Order *Lepidoptera*. The larva, which does the damage, measures, when full grown, less than half an inch in length and is about as thick as a medium sized knitting needle. It is of a dull olive green color, somewhat hairy, with a shining, horny, brown head. It folds the leaf upper surface in, fastening the edges

securely together. In this pupa it lives, feeding on the green tissue of the upper surface of the leaf. When full grown it changes to a small, naked, brown chrysalis and in the case of the first brood, the moth emerges in from ten days to two weeks. The second brood of worms appears in August and passes the winter in the pupa state.

Where this insect is so numerous as to be seriously destructive, applications of Paris green or tobacco tea have been found effectual, and in some fields the heroic measure of burning, by the aid of a light covering of straw, has been tried with entire success in exterminating the leaf rollers, while the strawberry plants were not injured at the roots and immediately put forth a strong growth of new leaves.

The Strawberry Slug or False caterpillar (*Emphytus maculatus*, Norton), was reported to me from some sections of the State, but I could not learn that its injuries were very general or very great. As it is at times, however, very destructive it is well for the fruit-grower to be able to recognize it and to be informed as to the best means of combatting it.

The perfect insect is a small, black, four-winged fly, belonging to the group known as saw-flies, from the peculiar saw-like construction and action of the blades of the ovipositor. It may be seen about the first of May flitting sluggishly about or resting upon the strawberry plants and depositing its eggs in little slits in the stems. From these eggs the tiny worms soon hatch and begin feeding on the leaves, perforating them with round holes. The full-grown worm is rather more than half an inch in length, of a dull translucent yellow color, shading to bluish green on the back. Head round, dull yellow, spotted with brown. Thoracic legs long, prolegs sixteen in number but slightly developed. When not feeding it rests on the leaf in a coiled position. Transformation is effected in a slight earthen cell just beneath the surface of the ground and the larvæ remains in a dormant condition until the following spring. The greatest difficulty in contending with this pest lies in the fact that it is single brooded and commits its most serious depredations on the plants just as the fruit is ripening, and unless the crop be entirely relinquished, no poisonous applications can be made to the vines. Pyrethrum in powder or infusion can be used, but is scarcely to be depended upon.

Where the insect is present in great numbers it is advisable to plow up and thoroughly work the soil of the strawberry beds and re-plant in as distant a location as possible. The plowing and harrowing will disturb and break open the cells in which the larvæ repose, or bury them deeply in the ground, and in either case they will perish.

PICKLED FRUIT FLY.

In concluding these notes I must refer to an insect that is becoming year by year an increasing nuisance, especially to housekeepers. This is a small two-winged fly or gnat, popularly termed the pickled fruit fly, pomace-fly or ferment-fly, and scientifically described under the name of *Drosophila ampelophila*, Lowe. This insect first attracted my attention four or five years ago, hovering over baskets of gathered fruit and infesting jars of pickles and jam that had not been hermetically sealed. Every succeeding year it has become more numerous and destructive and during the past summer and autumn was an almost insufferable pest. The fly is one-eighth of an inch in length, of a dull yellow color, faintly banded at the posterior end with black. The head is short and broad with prominent eyes. Thorax large and rounded, and, like the entire body, clothed with fine, often-branching hairs. The broad wings are beautifully iridescent, intersected by a few strong black veins and delicately fringed with hairs.

These flies are attracted to all fruits on which the epidermis is not absolutely intact, and especially to cooked vegetables, preserves and expressed fruit juices. The eggs, which they deposit on these substances, hatch almost immediately and in a very few days the food will be swarming with small, somewhat spindle-shaped, whitish maggots. The latter when full grown are about one-fourth of an inch in length, scantily clothed with short hairs and have at each end several minute tubercles. They require but four or five days for development and at the end of that time, stationing themselves in some permanent situation, they gradually shrink and harden into pale-brown *puparia*, with tuberculated heads and tails, from which, in a few days, the flies emerge by ruptures in the upper ends.

This insect does not, so far as I have been able to discover, ever attack perfectly sound, growing or pickled fruit. But the slightest puncture, like the peek of a bird, or a cut made by a wasp or other insect affords it an entrance and the larvæ soon reduce the fruit to a mass of decay. In this way the work of the codling moth and curculio is rendered doubly destructive. •

It has been reported as a very pernicious pest in vineyards, and many grape growers contend that the larvæ make their way into sound fruit, but this is doubtful. It is probable, however, that they do, indirectly, destroy many perfect berries, by spreading to them the fermenting juices of those which are infested and producing the conditions favorable for their entrance and development.

Around the cider mill these flies may be seen in dense clouds and any pomace that is neglected for a day or two will be found absolutely alive with the larvæ. But this is not so serious as the fact that they follow the cider into the vinegar barrels and breed in the latter to a disgusting extent. My attention was called last year to a barrel of cider in process of fermentation, on top of which, supported on the scum, these larvæ formed a layer nearly a quarter of an inch thick, while the sides of the barrel above the liquid were densely encrusted with their *puparia*.

During the present season the drying of apples or other fruits in the sun became an impossibility on account of this insect; and all pickles, preserves and even jellies had to be tightly sealed while still hot to insure their preservation. Even the fruit placed on the table for dessert would be attended by such a swarm of these litter pale flies that one lost one's relish for it.

Remedies for such a pest are difficult to discover, and extermination seems impossible. The only way in which the evil can be mitigated is in burning, or otherwise disposing of all refuse liable to attack, and in extreme care in kitchen and pantry, not to leave exposed any preparation that will afford it a breeding place.

MARY E. MURTFELDT,

Kirkwood, Mo.

A vote of thanks was given to the reader and to the writer of the paper.

FUNGI INJURIOUS TO SMALL FRUITS.

BY PROF. S. M. TRACY.

The paper was not furnished for publication.

SECRETARY.

DISCUSSION.

Prof. Tracy—If grapes rot after being bagged it is because the bags were not placed upon the fruit before the spores were upon its surface. I don't believe the spores would get up if covered deeply with the plow in the fall, but it is impracticable to cover them all. It can't be done. They have no balloon and will not come up through the ground if they are covered.

A PLEA FOR OUR BIRDS.

BY THEO. G. LEMMON.

To one engaged in the study of Missouri Ornithology it is an evident, as well as deplorable, fact that some of our most interesting and useful native birds are diminishing in numbers with a rapidity indicative of early extinction. The pleas, under which this uncalled for killing is carried on, are almost as various as the whims of those who do the killing. The-boy-with-a-gun, the call of a senseless fashion, and the supposition that certain birds are destructive to an extent that their killing is thus warranted, are the principle causes of destruction.

To you whose pursuits and tastes are such as to bring you into contact with bird life and an appreciation of its beauties, who own lands over which the sportsman (?) and vandal carry on the work of destruction, I come with a plea, begging you to enforce the laws preventing shooting on your grounds, except by those whom you can trust to carry out your instructions as to what to shoot. If you are for an instant in doubt about what to have shot, let me offer you a few facts gleaned from fourteen years of study of Missouri birds as well as some gleaned from other students in other fields, nor will I call your attention to a single bird that I do not know to have been taken within the boundaries of our State.

The killing of American birds for the protection of any crop grown on Missouri soil, I am convinced is a mistake. I care not what the bird may be, nor what the crop to be protected. I do not speak at random, Missouri has a bird fauna of at least one hundred and eighty-eight species, not one of which do I deem it wise husbandry to destroy for the protection of any crop grown here, nor yet for the protection of either bees or poultry.

Feeling that it is entirely by your kindness that I come before you to offer a plea for our birds, I must necessarily feel that my time is limited. I will, therefore, begin by pleading for those upon which the fiat of destruction has been passed by men for so long "that the memory of man runneth not to the contrary." Even our legislatures have gone so far as to allow the killing of certain birds throughout all seasons, and, in at least one case, offered a reward for the heads of hawks.

Now, let us discard, for a moment, the superstitions regarding both hawks and owls, and see if these dignified bodies have not been guilty of trying to perpetuate a superstition as wild as the dream of a sap-sucker, and that, too, by "an act entitled an act, and rendered valid by the signature of the Governor and the great seal of blank. A general assembly of owls could draw a better bill, so far as ornithology is concerned, and yet it is not because these men are not intelligent enough to know, but because they had rather adopt and work on a popular superstition than do the work necessary to learn the truth.

I do not deny that hawks and owls catch chickens. In the twenty-two years over which my memory reaches with a distinctness sufficient to make it reliable, I have three times seen a hawk catch a chicken, so I am positive the poultry industry has suffered from this cause a dead loss of two chickens—the third chicken I rescued, so no loss was sustained. My hearer did you ever see a hawk or an owl catch a chicken? How often have you seen it? Have you seen it often enough to keep, for six months, a single hawk as fat as a gray hound, or even a church mouse?

I know you believe it, I know everybody believes it, and I know nobody can give any better reason for the belief than you can; and you will acknowledge you have not evidence enough to convict a man of treason if it were directed against a man instead of a bird, and given in a court of justice instead of poured into the too eager ear. Ninety-nine hundredths of your evidence is hearsay, and you could write all you have heard on a postal card, and yet have room for the seal and signature.

But we are not confined to such evidence, if we will but look where better is to be found. We have evidence given upon professional honor, which is as sacred as an oath. Mr. B. Harry Warren, of Chester county, Penn., has so studied and written, (see report of the Pennsylvania Board of Agriculture for 1883), as to enable us to know the facts so far as hawks are concerned. Let us read the lesson as he, by eight years of study, learned it. He dissected the following specimens and found them to contain what is herein set forth.

RED TAILED HAWK, (*Buteo borealis*).

One hundred and two birds dissected; "in 81, chiefly mice and small quadrupeds, also some small birds; 9, chickens; 3, quail; 2, rabbits; 1, ham skin; 1, part of a skunk; 3, snakes."

RED SHOULDERED HAWK, (*Buteo lineatus*).

Thirty-six birds dissected; "in 23 mice and small quadrupeds, grasshoppers and coleopterous insects; 2, snakes and parts of frogs; 2, small birds, particles of hair and orthopterous insects."

BROADWINGED HAWK, (*Buteo Pennsylvanicus*).

Twelve birds dissected; "in 4, were mice; 3, small birds; 4, frogs; 1, killed the 22d of May this year (1883) was gorged with crawfish with which were traces of coleopterous insects."

SPARROW HAWK, (*Timmuculus sparverius*).

Twenty-nine birds dissected; "fifteen principally mice, with frequent traces of various insects; 6, grasshoppers; 2, coleoptera and grasshoppers; 2, meadow larks; 4, small birds, sparrows."

COOPERS HAWK, (*Accipiter cooperi*).

Twenty-seven birds dissected; "fourteen showed the food taken to have been chickens; 5, small birds, sparrows and warblers—Dendroica: 2, quail; 1, bull-frogs; 3, mice and insects; 2, hair and other remains of quadrupeds."

SHARP-SKINNED HAWK, (*Accipiter fuscus*).

Fifteen birds dissected; "six of this number showed small birds; 3, quail; 1, mice; 4, remains of young chickens; 1, grasshoppers and beetles."

AMERICAN ROUGH-LEGGED HAWK, (*Archibuteo lagopus Sancti Jo-*
hannis).

Nine birds dissected; "all showed their food to have been exclusively field mice."

From this it appears that except Cooper's, the hawks are the friends and assistants of the Agriculturist and Horticulturist, and that upon no other is war necessary, nor do I deem it necessary in his case, but as he is small, one of the swiftest and least suspicioned, he will care for himself.

The owls need but little defense, if you want to find the home of an owl, go into the heavy forests and look on the ground at the roots of the large trees, particularly the hollow trees. You will not have hunted long, in the proper locality, till you find at the root of some tree a number of queer looking pellets made of hair and bones. These are waste matter disgorged from the stomach or crop of an owl. If you are not well enough posted in comparative anatomy to recognize the bones, you can at least conclude that the *hair* did not come off of any of your chickens; whether the wholesale destroyers of rabbits, field-mice, moles, etc., merit extinction at the hands of agriculturists and horticulturists, these gentlemen may determine.

The crow is under ban from which I will make no effort to remove him, as he is abundantly able to take care of himself.

I will simply say, in his favor, that he is the untiring enemy of the wire worm.

During the fall of 1884 I was at Lexington, Mo., and heard constant complaint of the ravages of the wire-worm. Knowing the crow to have been charged with enmity to the insect I took advantage of the favorable opportunity to make investigations. By shooting and examining a number of birds I satisfied myself that he was, at least, one of the most formidable natural enemies of this pest. While I believe 99 per cent of the depredations charged to him are made upon hearsay evidence, I do not deem it at all necessary to offer anything more in his favor, but would address him in the language of the immortal Tallyrand; "Madam you can swim!"

Of our small birds I find the Cat-bird, (*M. Carolinensis*), the Orchard Oriole, (*J. Spurius*), the Bee martin or King bird, (*T. Carolinensis*), the Jay bird, (*C. cristatus*), and the Domestic Sparrow or English Sparrow, (*P. domesticus*) charged with high crimes and misdemeanors; or at least with conduct unbecoming the friend of the horticulturist. I am not prepared to sit in judgment upon the cat-bird, from lack of

opportunity to make an exhaustive study of him in his relations to the fruit crop. He is one of our tamest birds, as well as one of our sweetest singers. I, therefore, would beg that persons entertaining the least doubt, would give the bird the benefit of the doubt.

The Orchard Oriole—This little fellow with his black head, wing, and tail and chestnut body-color, or little lady with black trimmings and yellowish-olive body-covering. I am, as a result of a series of investigations undertaken at the instigation of the President of the Missouri State Horticultural Society, forced to render some evidence against. He will nip a grape occasionally, nor does he wait upon the occasion.

Last summer in an arbor where I had an opportunity of watching some, that had evidently nested near, I found them among the vines early indeed. The greater part of their work, I was soon convinced from their activity, was capturing insects. On several occasions I was convinced the bird attacked the grape. Going immediately to the spot I found at least one grape that he had taken in his mouth and squeezed thoroughly; the skin of course being broken in each case; and at least a part of the pulp gone. But for every berry in the arbor so injured I found several as effectually ruined by being punctured with a little round hole through which I found the bees were feeding.

Later, on shooting some of these birds and dissecting them on the spot, I found in at least three of them (I shot four) traces of grapes; though the crop was pretty well filled with insects—to which the bees were not exceptions.

The Bee Martin or Kingbird is a true fly catcher and is not over-choice in his diet. His principal want in life seem to be quantity and not quality; the one problem to the solution of which he devotes himself with, one assiduity worthy of a more noble cause, is, how to secure the largest amount of food with the least possible outlay of exertion. Hence, he hovers over the bee-hive simply because it saves labor. He never disturbs fruit. He does disturb bees, and bees will disturb fruit, at least, after the skin is broken.

The Bee Martin if he locates near your orchard or vineyard does so, because he finds food convenient—insect food. He can not afford to waste vital energy securing food. He needs all his vital energy to whip everything else that wears feathers and flies in sight of his domicile. He will tolerate no invasion of his pre-empted grounds. As I said before, he cares little as to the quality of his food, if it only ranks up well in quantity.

I once dissected a Bee Martin, which, from the number of pairs of wings I found, I was convinced had that morning eaten thirteen Colo-

rado potato beetles, and this is the only bird I have ever known to destroy that insect.

The Jay bird, (*C. crestatus*), is one of our prettiest and most familiar birds, and as a songster is capable of producing a series of low melodious tones; but he is an omniverous marauder, an unmitigated scamp. He is the school-boy of bird life, whose only excuse for living is that he may commit some outrageous depredation and then fly off and yell his joy in demoniacal tones. He does sometime forget himself and warble a low, sweet melody; but it is only during his mental aberrations. I think as soon as he collects his wits he is thoroughly ashamed of himself for having wasted a moment which might have been devoted to the commission of some nuisance.

He is a connoisseur in diet, and takes to variety; and will pull the shuck down from a green ear of sweet corn and peck the grains off with apparently as much relish as he will rob the May cherry, apricot, early apple or grape vine. Yet these are only the dainties for which he renders compensation by the astonishing quantity of insects he feeds to his progeny.

THE ENGLISH SPARROW, (*P. domesticus*).

England's contribution to American Ornithology—was imported to destroy the canker-worms and geome birds; but with true English perversity, positively refuse to have anything to do with either from the day of his landing to the present. Nature built him on the principles upon which grain-eating birds are fashioned; but he declines grain for fruits or the garbage of the gutter. Pugnacious in the highest degree, he drives away the native birds that would feed upon the insects he was imported to destroy. Of all the bird fauna of America, this alien promises to prove the greatest if not the only nuisance. He is already a nuisance in the city, and, judging from the observations of American, and the experience of Australian ornithologists, he promises to as completely overrun the country as the city; and that within a few years. As rapidly as he encroaches upon the rural districts, he should be murdered—utterly regardless of the suffering entailed upon his numerous progeny. The *New York Sun* "detests the English sparrow as a bird that is wholly depraved, a robber, a brigand, a pirate, everything that is bad;" and if it would echo my entire sentiment it might add, "nothing that is good." Listen to his accomplishments as an Australian importation, and then we will drop him—as often as he comes in gun shot.

Miss Gordon Cummings writes up one case in which a horticulturist was foraged upon by these nuisances to the extent of a ton and a half of grapes and the entire product of five fig trees, and this assessment was levied and collected in the brief period of ten days.

Rev. J. G. Wood says: "Poison and traps have been tried in vain, as the sparrow finds fruits quite good enough for him without eating poison, and is much too clever to be enticed into a trap."

An Australian journal says: "The sparrow in Australia has conceived a new and broader scheme of life than that with which he was satisfied in the old country. Nothing is safe from his devastating bill. His appetite for grapes is insatiable, in figs is his delight. In peaches, nectarines, apricots, pears and plums he makes such sad havoc as to cause a famine in those fruits, abundantly as they grow in the kindly soil of Australia. The agriculturist has found in him a foe more terrible than the blight or the caterpillar. Wheat, barley and peas are devoured in the ear and in the pod, when fruits are not in season. When neither fruits nor grain are to be got, then tender flower buds and succulent young vegetable shoots are laid under contribution."

For years in some parts of the continent he has been an out-law upon whose head a price was set. Yet his increase is steady.

The fecundity of the bird is astonishing. I have known a pair to raise to flight three broods of from four to six birds each in a single season—from twelve to eighteed birds increase from a single pair. We may safely put the increase at ten fold per annum, which will cover the Ameican continent more rapidly than did the Europeans.

Finally the English sparrow was a stranger and we took him in, and, verily, he promises at a far too early day to return the compliment.

Mr. Lionberger.—I would like to ask whether the frog is considered beneficial or injurious?

Mr. Goodman.—The toad is one of our best friends. A good big one is worth ten dollars. The frog is our friend also.

Mr. President.—The toad is beneficial to the agriculturist. I do not know that the frog is.

Mr. Patterson.—One frog caught in a pond was opened and found to contain five large grasshoppers. It was not a toad.

Mr. Laughlin.—Condemned the loafer who roams over the country with a six-bits shot gun. The only good he does is to kill a few rabbits.

Mr. President.—When I see one I go to him with a piece of paper and ask him "What is your name?" and the next one I ask "What is your name?" I do that and they never come back.

Mr. Laughlin.—I think we ought to enforce the law and stop this nuisance of trespassing.

Mr. Maitland.—I thing the county court should pass a law forbidding shooting upon the public road. You can't stop them from trespassing upon your premises as long as they are allowed to shoot upon the roads.

UTILITY NOT THE ONLY REQUISITE.

PROF. GEO. L. OSBORNE, WARRENSBURG.

When I received a letter from the secretary of this society asking me to write something upon this subject I thought I would do it, but before I had had time to consider the subject I found my name down on the programme. I have been so busy with making reports and other labors that I have not had time to write anything. This is my apology.

What I may be able to say upon this subject will be of an exceedingly rambling nature. I presume there is something in store for us in the near future as those tables over the way are still full.

"Utility not the only requisite" seems to suggest that utility is the only requisite in the early ages of civilization. The caves our ancestors inhabited seem to have been occupied only for their utility as a shelter from rain and snow, heat and cold. As civilization advanced we find them ornamenting their homes, dressing the stones, frescoing the walls and hanging pictures on them. Let us examine the wooden structure and its progress, beginning with the wigwam of the American Indian. From the wigwam of poles and bark to the unhewn log

cabin, from the rough to the hewn log house, from the log house to the regular frame structure, from the frame building which meets only the wants of utility to the modern Queen Anne house in which ornament forms the chief element, is the order of progress.

We might examine the brick structure and we can trace the progress from the sun dried material to the building of those palaces which are now being excavated and brought to light upon the plains of Western Asia. The walls of those buildings were not frescoed but were of a substance like Alabaster upon which were sculptured figures of their deities. Even they looked from utility towards the esthetic. Let us look at articles of domestic manufacture. The savage uses skins for clothing. These were to them useful, but became more and more useful as they were decorated with paint or beads and made more beautiful. Turning aside from that which nature presents, as scarcity forces them to use something else for their protection, we find them using various resources of nature as hemp, cocoanut fiber, weeds, with still the same idea of utility. Further along we find the silk and the embroidery of the Chinese. The Chinaman has gone beyond the phase of utility and is appealing to the esthetic in human life. The law is, from utility to the esthetic when we find leisure for the pursuit of the higher demands of our nature. In China we look upon another phase of nature in which utility is the controlling element. The Chinaman is limited in the number of wives he has, by the number which he can purchase. The wife plowing with a forked stick is a thing of utility. One wife is as much as we can afford, and that wife is supposed to be not only the most useful but also the most ornamental of objects. There is a stage in which we pass beyond the inspiration of utility to that higher inspiration which comes from love of the beautiful.

Let us next look at the development of monumental art, at the disposition which we seem to possess by nature to remember the dead. From the simple earth mound which covers the grave of the departed simply to remind us of the one who lies there; the next step is to the rough, unhewn grave stone. In this the element of utility is the first inspiration. Let us follow it still further and we reach the time when the stone is polished and the simple mark is replaced by an inscription commemorative of the virtues of the dead. Still further the monument becomes a thing of beauty, like the statue of "Liberty enlightening the world," whose light future generations shall see as they sail into the harbor of New York when we are cold in death.

Turning aside from art, let us look at nature and behold with its violets spread out before us how she combines the useful with the

beautiful. What is there more useful than sunshine? It also gives the rose and the lily their beauty. Above the useful comes that other and better which owes itself to this same sun and shows the wisdom of Providence. What is the lesson that we as horticultorists should learn from this? We should grow fruit with a full sound form and a beautiful skin that it may sell in the market. Look at that table of apples, the most attractive are not necessarily the best. Take the Ben Davis as a sample, its flavor is somewhat flat, and yet it will not loose much in comparison with some of the finer flavored kinds upon the the table; one of its good qualities is its fine appearance. I remember my first sight of the Ben Davis, and it has been feasted upon ever since regardless of its lack of flavor. We do not give our attention all to the useful fruits, but some of it to flowers, which lead to the higher life. The majestic trees which line our plains are not valuable only because they are useful. Their foliage and their forms appeal to this higher sense of the ornamental, and the planting of trees is an instance of the combining of the useful and the beautiful. We will not plant all water maples, but will not discard it; its fast growth makes it necessary. We will go to the southeast for the sweet gum, one of the most beautiful, and plant them alternately. During the entire summer the air is fragrant with the odor that comes from these trees. Let us plant and tastefully ornament our school grounds, and in every possible way appeal to those higher elements in human nature which will lead us to a higher and better life. The esthetic will reach upon the useful and make it still more useful. I trust that soon the school houses now standing alone upon the bleak prairie will have sheltered walks under which the school boy and girl may enjoy their recesses and the shade. I feel under great obligation for the contribution of trees you sent us at Warrensburg. Some of your children may bask in the shade of those trees—at least some of Missouri's children may have the benefit.

“WASTE PLACES.”

BY MRS. A. C. SKINNER, BUTLER, MO.

MR. CHAIRMAN, LADIES AND GENTLEMEN: When we contemplate what a grand old country we have to live in and such a splendid climate, with rich and fertile soil, how can we, as its inhabitants, abuse the privilege of making it as attractive as possible. But we come far short of this when we note the “waste places.” Go in any direction yet you find patches of ground that have never been in cultivation, which could, with a very little labor, be made useful in the way of a vegetable and flower garden, for the fruit and flower missions of our cities are among the most beautiful charities. There are comparatively few farms in our country but have “waste places.”

A house surrounded by a neat grassy plat is an object any one cannot help admiring, and is said to be a sure sign that cheerfulness reigns within. How many farmers live on the same farm for years, aye, for a life time and not plant but few trees, shrubs and flowers. Where is the farmer that is so poor or pressed for time that he cannot have at least a neat lawn about his house. This should be one of the first considerations in the way of improving a home, for I would sooner live in a cabin than without these “jewels.”

Farmers, I am sorry to say, are the most negligent on this score. It does not seem for the want of land, but prompt action. They have so little opposition in this respect they lose their pride and ambition to a certain degree. Of course there are exceptions, but as a rule there are very few tidy farms on account of “waste places.”

Yet nature has not been idle, but with lavish hand hath strewn through the woods and fields plants as pretty as any grown by florists. Then let each and every home have a place for the cultivation of trees and flowers. They will reward us with both beauty and fragrance. They also teach us important lessons how to make our homes attractive to our children, friends and ourselves.

Imagine for a moment a house when spring has come, found naught but wild weeds, night shade and rough-leaved burdock in the place of the sweet doorway greeting of the honeysuckle and the rose;

where the house wall seemed blistered in the sun, without a tree or vine to cast the tremulous shadow of the leaves across the curtainless window. Then imagine, dear friends, the other side of the picture with only "waste places" and you have a sorry picture before. Shall we then fill the "waste places" in our minds by useful study and by becoming members of the Horticultural Society?

PUBLIC PARKS.

BY Z. S. RAGAN, INDEPENDENCE, MO.

I am glad to find that an effort is being made to establish a public park for Kansas City, and that Mayor Kumpf has recommended, and the city council has the same under consideration. The local horticultural society for six years past has recommended, and by numerous essays, the importance of suitable drives, boulevards, cemetery and parks as a necessity in any city of importance.

At the present time it may not be out of question to discuss some of the important questions to be considered. In the selection of grounds, there are two essential requisites:

First—A sufficient area of contiguous territory containing water, shade, etc., to be improved from year to year, keeping pace with advance and enlargement of the city.

Second—The eligibility as to health, diversity and beauty.

If only a small park is wanted its lay is of but little consequence, confined only to its immediate locality. Many of the Kansas county towns have one or two public parks. Yet if a city park is desired, ranking with those of leading American cities, a suitable area of land must be had to be commensurate with the wants of the city.

The Central Park, in New York, being the most important work of the kind that has been undertaken in America, the importance of which was urged as a necessity by the horticulturists. At present it contains 2,700 acres, and the city park at Philadelphia contains about the same

amount of land, together with a large body of water. Chicago and St. Louis each have ten or a dozen parks. Low grounds, however beautiful, if cut off from outward view, in the vicinity of artificial ponds or sluggish streams, creating miasma or malaria, cannot be considered favorable. Such as want diversity or variety cannot be considered without enormous expense to avoid monotony. The late A. J. Downing, author of "Landscape Gardening of America," says: "The admirers of nature, as well as the lovers of pictures and engravings, will at once call to mind examples of scenery distinctly expressive of these ends of beauty. In nature, perhaps, some gentle, undulating plain covered with enameled turf, partially or entirely encompassed by rich, rolling outlines of forest canopy, its wildest expanse here broken occasionally by noble groups of round headed trees, or there interspersed with single specimens, whose heads of foliage flowing in outline or drooping in masses to the very turf beneath them. For an example of opposite character perhaps a romantic valley, half shut in on two or more sides by steep rocky banks partially concealed and overhung by clustering vines and tangled thickets of deepest foliage against the sky, outlines the irregular trunk of some old, half decayed tree near by, or the horizontal unique branches of the oak or elm, with their strongly marked forms. Rough and irregular stems and trunks, rocks half covered with masses of flowering plants, open glades of bright verdure opposed to dark masses of bold, shadowy foliage, form prominent objects in the foreground."

Has the city of the hills, grounds pre-eminently suitable for this purpose? Echo answers in the affirmative. Other American cities would give millions of dollars if they could be possessed of these coveted grounds that nature has so lavishly formed, awaiting the finishing touch at the suggestion of the landscape gardener. Big Muddy, one of the greatest rivers in the world. The Nile of America. The only river on the continent that has an annual summer rise from the cool, pure waters caused by melting snow and ice in the far off distant mountains in the northwest. This great river is perpetually sweeping by at the foot of the city, and its prominent bluffs has given to the city the appellation of the city of seven hills, which may appropriately suggest that one more might be added as a park. One of these promontories, in easy range of the city, according to the government survey, is the highest on the river in the State, being 365 feet above the water in the river. From this isolated elevation is to be had one of the finest views in the world, eclipsing anything on the boasted Hudson river. An eminent tourist and writer has said that "no scene is complete without

a river." Another adds that "distance lends enchantment to the view."

Here we have both these together with the fancy, beauty and picturesque ideal of landscape gardeners. From this latitude a sweeping view in all directions from thirty to sixty to seventy-five miles, including the meanderings of the Missouri river, with its islands, inlets, promontories and extended beautiful fertile valleys. An extent of many miles may be seen heavily laden steamers, while passing near by is distinctly heard, not only the puffing engine, but the creaking machinery and the merry songs of the cooks and hands, and the waving handkerchiefs by the passengers. Those passing down stream glide gaily and majestically like some great sea fowl wending its way to the distant ocean. On either side of the river are to be seen trains on numerous railways coming to view at intervals and again and again disappearing behind some clump of timber or bluff. From the valley the eye is greeted by here and there an abrupt promontory and intervening gentle swelling slopes, beyond which opens out extended prairies, dotted over with farms and farm houses, at the same time a bird's-eye view is to be had of half a score of towns and cities. Thus we have presented to view not only a vast extent of country, but one of the grandest perspective landscapes in America.

Among the important features of this locality are the wilderness—a thickly wooded, diversified, picturesque wild—containing many specimens of the flora of the country, in part including groves of large sugar, maple, elm, ash linn, walnut, oak, cherry, mulberry, hickory, sycamore, red-bud, cottonwood, hackberry and many others, with a thick growth of underbrush of pawpaw, dogwood, etc., together with wild grape, ivy, bittersweet, and other climbing vines. Yet some of the more magnificent and rare attractions are the gigantic bluffs, with a succession of terraces, adapted to secluded drives, at different altitudes from the riverside to the summit. Here are to be seen the rugged precipices cropping out 'mid the overhanging trees and vines. Numerous springs gush out and ripple down among the rocks till they pour over some high ledge, furnishing perpetual shower baths.

Further along may be seen great caverns environed with dense masses of trees, brush and vines all conspiring to complete the wild appearance of a den of a bandit.

Continuous deep ledges of rocks at intervals project out among the dense forests, with a background of dense, shady green. Receding outward from these river scenes, the land is beautifully undulating and alternating between native groves and green fields traversed by small streams fed by never-failing springs of purest water.

“Here Nature in her unaffected dress,
Plaited with villies and embost with hills,
Enchast with silver streams and fringed with woods,
Sits lovely.”

—*Chamberlayne.*

“Il est des sions plus donuse, un art plus enchanteur,
C'est peu de charmer l'oeil, faut parler au coeur.
Avez-vous donc connu ces rapports invisibles,
Des crops inan nes et des entrees sensibles ?
Avez-vous entendu des canx. des pres. des bois,
La mnette eloquencu et la secrete voix ?
Rendez-vous ces effets ”

—*Les Jardins, Book 1.*

It may be no visionary prophecy to say that such grounds as can now be had at a mere nominal price, and improved at moderate cost, will rank among the most celebrated parks or public grounds in America.

Both visitors and citizens who seek pleasure and health outside the dust and smoke and din of the crowded city will be delighted by the scenery and invigorated by the high, pure air and water, and return praising the public park and the guardians of the city who founded, and those who continue to foster it.

Z. S. RAGAN.

INDEPENDENCE, November 19, 1886.

REPORT BY CHAS. PATTERSON, KIRKSVILLE, MO.

Mr. L. A. Goodman :

DEAR SIR—As I was prevented from attending your late meeting at Lexington (except by proxy of my son), I thought of partly making up the loss by attending the Illinois meeting at Jacksonville, the 14th and 16th instant. I now regret not having made any notes of the proceedings for your report, and can only plead that they seemed so interesting I surely never would forget them, and while this is true in gen-

eral, I find it difficult to recall particulars with sufficient accuracy for record.

The exhibits filled five good sized tables closely, and were generally quite creditable, though I missed nearly all the new candidates for popular approval, and it was not very uncommon to find our familiar marks of the Codlin moth on the best specimens. And I was pleased to hear their delegate to your meeting mention with approval and recommendation your plan of exhibits and awards.

The exhibits must have been all arranged the day before, or very early that morning, for all were ready and a goodly attendance in waiting, promptly at the time set for opening the first session. My first surprise was on being called up, introduced and made an honorary member, as representing our State and society. But when I called to mind their generous love of their pursuit and their fellow-men, seeking objects however humble to entwine themselves around, like the tendrils of a vine, I accepted the honor as gracefully, and perhaps as awkwardly as I could.

One of the most generally interesting papers was by Prof. S. A. Forbes, Champaign, detailing his experiments in sprinkling apple trees with Paris green, against the Codlin moth, continued from last year. The directions were to apply one and a half ounces of Paris green in five gallons of water, when the apples range in size from a small pea to a hazelnut. If rains should occur soon after, it would be necessary to repeat. I should prefer, and perhaps he said, to apply as soon as they reach the size of a pea, and again when the size of hazelnuts. After the apples begin to hang downwards, exposing the basin around the stem to catching and holding a quantity of the poison, there might be danger of poisoning the apple, before that there is none. It was suggested that stock had better be kept out until rains had washed off the poison from grass and weeds, but some one's experience seemed to indicate that the danger was small or none. By having selected similar trees as checks in the experiments, the results indicated that seventy per cent. of those that would have been strong were saved by the two sprinklings. It is to be hoped that these experiments will be continued from year to year.

While the apple crop in central and southern Illinois has been good—better than last year, and better than seemed then in promise, the northern parts reported their trees dead, and their only hope is to bridge the chasm with the hardiest varieties, top grafted on Duchess, Whitney, etc., until new seedlings or Russian importations offer more encouragements. Adam-like, they try to blame somebody for

these misfortunes, and nursery men must bear at least an important part, if not all, for grafting on seedlings from cidermills, or the smallest and poorest apples. Some members seem to be beyond the powers of reasoning on this subject, and certainly know a great deal more about pigs and colts than about the difference between a grafted tree and a seedling.

Such wide-spread disasters by cold winter, or rather as I think by the immature state of the trees, as occurred two years ago, seems never to have occurred before in the memory of the oldest inhabitant, and may not occur again in the same length of time, but it would be fairly safe to plant orchards here, expecting to market apples there until they shall gather courage to plant extensively again. Undoubtedly many of their orchards that still hold out some promise, are suffering from want of cultivation and pruning, but not a word was said, or seemed to be acceptable on that point. I am glad to learn that our members are generally awake and agreed on that subject. Mr. Riehl, their delegate to your convention, gave warning that if Illinois horticulturists did not keep a sharp look out, they could not long be in the lead, and I feel quite safe in staking the issue on that point, before he or they will suspect us.

In discussing vegetables, one member claimed to have grown celery successfully by planting seed in bottomless quart tin cans, until ready for transplanting, then plunging the cans in the permanent place, gradually raising the cans and drawing in soil as the plants grow.

The society was invited to visit the asylums for the blind, the deaf and dumb and the insane. The programme assigned all these for Friday, after adjournment, but perhaps from fear that nearly all would leave then, it was decided to visit one each morning, and still there was nearly a full attendance on Friday. It is safe to say that if a majority of tax-payers could visit their own institutions of this class, we would all pay our taxes more cheerfully.

The city of Jacksonville attracts admiration for having all its streets and lawns planted in trees, more than any other thing. The square or Central Park, embraces four good size building blocks. It has five electric light towers (I think), costing probably many times as much as all the trees, evergreens and shrubs, but who could entertain the idea of comparing their beauty or utility?

I think of attending the Iowa State meeting at Charles city, 18th and 21st of January. If you will indicate how I could serve you better there, I will endeavor to comply.

HOW TO PRODUCE NEW VARIETIES OF APPLES.

In the early settlement of the country a large number of seedling orchards were planted, by pioneers, missionaries, Indians and others. From these most of our leading varieties were obtained, by selecting from an immense number. But this is now abandoned, and where can we look for further improvements? A few are planting seed carefully selected, and others are scouring Russia, but that is mostly for iron-clads, rather than superior quality and productiveness for our latitude. Let nurserymen select such seed as they deem best and plant it as for grafting roots. Select the best looking and grow into trees to sell, one or more in every bill. I believe most customers would buy that much, if not we can throw them in, and they will certainly thank us for them. Thus we can get 100,000 planted in Missouri and stand a fair chance of getting several improvements.

Yours truly,

CHAS. PATTERSON.

ECONOMY OF MULCHING—THE CHEAPEST AND BEST.

BY Z. T. RUSSELL, CARTHAGE.

Officers and Members Missouri Horticultural Society :

Notice had been received from Secretary Goodman that I will be expected to furnish a paper upon the above subject at the coming annual meeting at Lexington. I have had no experience in the business of writing essays and do not feel able to write anything of value upon this subject, but since I have been asked to do so I will make the effort and leave the result with you, hoping that if it does not contain anything new or of especial interest it may at least call out some points in the discussion that will be of value.

The purposes for which mulch is used are varied in character and five in number. The best mulch is the one that will come the nearest to filling perfectly all of the requirements or purposes for which mulch is used. It should afford protection from the rigors of winter and the freezings and thawings of spring. It should keep down the weeds; should protect the fruit from the soil; should retain the moisture in the soil, and it should furnish nourishment to the growing plants.

What I shall write will be written with special reference to the use of mulching for strawberries. I have had but little experience in its use for any other purpose.

The best mulch ever used upon my place was obtained from the livery stables in town. It was a coarse, trashy manure. It was made by giving the horses an abundance of bedding, and, of course, cleaning out and renewing the bedding daily. Anyone having a horse to care for can make enough of such material during the fall and winter to mulch quite a large patch of ground, using old straw or hay or leaves, or all for bedding. I like a great many leaves mixed in. I regard this material as the best mulch because it is light; because the straw or hay used is usually broken up short and hence it can be spread easily, rapidly and evenly; because it is one of the best materials that can be used for preventing the evaporation of moisture from the soil and is unexcelled for preventing the growth of weeds, provided it is free from seeds, as it should always be, and last though most important of all, because it contains a large amount of fertilizing material which is washed out by the rains and snows and absorbed by the top soil where it helps very materially to increase the size of the berries and in carrying the crop through, good sized to the last picking. The cost of this material depends entirely upon circumstances. The Carthage liverymen charge about twenty cents per two-horse load for it, but it can often be obtained for the hauling, and in some towns no charge is ever made. When one makes it himself it costs practically nothing at all except a little labor.

Some fruit growers buy up old straw stacks during the summer and haul them to the cattle yard where they are spread out and left until needed. The straw is soon broken up fine and well mixed and saturated with the voidings of the cattle. This doubtless makes a very superior mulch and is well worthy of trial by anyone who is so fortunate as to possess both a strawberry patch and a herd of cattle.

Prairie hay makes a good mulch. In this county large quantities are cut and stacked in the field. There is always more or less of it gets damaged by rains, etc., and is left upon the ground. This can us-

nally be bought cheap or obtained for nothing, the owners of the land being glad to have it removed in order to keep it from killing out the grass where it lies. I have used considerable of this material and like it very much especially if it is short and partly rotted.

Wheat straw, when used alone for mulching, is of about the same value as prairie hay. It is cheap and is to be had everywhere. When bright and good it is too valuable to be used as mulch, but when it becomes damaged so as to be of little or no value for other purposes, becoming dark-colored, half-rotten and easily crumbled, it is still very valuable for mulch, much better, in fact, than the good bright straw. I think I ruined one patch of strawberries by mulching them in the spring with bright straw

The costliest mulch ever tried on my place, and the poorest, was obtained by sowing oats thickly over the patch. I had seen this recommended very highly by an old fruit grower of the east—one who had had much and long experience in the business. Having my mulch to buy, and being naturally inclined to try experiments, I concluded to try sowing one bushel. This was done at the time recommended—during the first week in September. This soon came up nicely and grew off luxuriantly until they were checked by the cold weather, when they fell down, forming a fine winter protection. I thought I had struck a bonanza, but when spring came, lo! they were still alive instead of being killed by the winter as I had expected them to be. And they were not only alive but they grew up so thick and tall that I was compelled to pull them by hand in order to save the berries. It may be claimed that they were “winter” oats, and that if “summer” had been sown instead the result would have been different. I grant that in some respects it might have been so, but think that at the best it can only be a “costly experiment.” The plants were so shaded, crowded and robbed of their food during the fall that they were very inferior in size to those growing right alongside of them treated alike in all respects until the sowing of the oats. The berries were greatly reduced in numbers and still more reduced in size. I don’t want any more “oats for mulch.” I am perfectly willing to leave that luxury to those who admire it. If I wanted to try and induce a man to ruin his berry-patch I would recommend to him that he try sowing “oats for a mulch,” otherwise I should recommend that he grow his oats and strawberries upon separate pieces of land.

The following resolution was passed :

Resolved, That Mr. Dan Carpenter be requested to give us a paper showing the other side of the fruit question.

REPORT OF COMMITTEE ON FINAL RESOLUTIONS.

Resolved, That the thanks of the society are hereby expressed :

1st. To Providence for a season of most delightful weather during the entire session.

2d. To the people of Lexington for their kind and generous hospitality.

3d. To Lafayette County Horticultural Society for the provision of a hall in which to hold our session, and for other valuable services in matters of arrangements.

4th. To the several railroad lines for the usual reduced convention rates for delegates attending.

5th. To the Kansas City Journal, Times and Live Stock Record, the St. Louis Republican, Globe-Democrat, Colman's Rural World, Journal of Agriculture ; and the Prairie Farmer, of Chicago, for publishing proceedings.

6th. To Hans Neilson, St. Joseph ; R. S. Brown, Kansas City, and J. P. Coen, Lexington, for the magnificent contribution of flowers furnished on this occasion.

7th. To the presiding officer, J. C. Evans, for the prompt, impartial and efficient manner in which the exercises have been conducted.

8th. To our very efficient secretary, L. A. Goodman, for his untiring zeal and devotion to the welfare of the society in all of its aspects and vicissitudes.

9th. To the ladies of this society who have so kindly furnished a number of such valuable papers.

J. B. FOLLETT,
HENRY SPEER,
A. AMBROSE,
Committee.

After a few parting words from the secretary on the success of this meeting beyond his expectations, and a hope that our meetings may grow in interest and in usefulness, the society adjourned one of the most pleasant meetings ever held.

REPORTS
OF
LOCAL SOCIETIES
AND
SOME OF THE PAPERS READ.

MISSOURI VALLEY HORTICULTURAL SOCIETY.

SOUTH MISSOURI.

ITS BEAUTIES, ITS ADVANTAGES, ITS PROSPECTS.

[BY G. W. HOPKINS OF SPRINGFIELD.]

Mr. President and members of the Missouri Valley Horticultural Society:

Having furnished you a paper last year on the future prospects of this part of Missouri, and promised to continue the subject at some future time, I will now endeavor to fulfill that promise.

Taking advantage of the occasion of the meeting of the State Horticultural Society at West Plains, Mo., I embarked at Springfield on the morning of June 7th, and after a few hour's ride over the Gulf railroad arrived at that flourishing little city.

On the route we passed several nice towns, among which were Cedar Gap, Mountain Grove and Willow Springs. At all of these places are found saw mills and huge piles of lumber, the product of the pine forests of the surrounding country.

At Willow Springs are found evidence of prosperity. New houses are being erected, real estate is booming, and everything shows an air of business. It is from here the Current River railroad is being built, which penetrates the finest belt of pine timber in the State. This road, when completed, will certainly be an important factor in cheapening the price of lumber.

Of the beautiful city of West Plains, and the hospitality of its citizens to the members of the Horticultural Society, it is not necessary for me to speak. Others have exhausted the subject, and I simply en-

dorse all they have said. The moment I entered the courthouse and saw the beautiful floral decorations, I knew we were among a refined and cultured people, which opinion was more strongly confirmed the longer we staid. By this trip I have got rid of an idea I have long entertained in regard to the people of South Missouri and Arkansas.

I once heard an old man say who had been through this section of country years ago, that there were grown ladies there who had never worn a shoe, and their feet had become so hard they would strike fire from the flint rocks at every step. That you might take a basket of soda biscuit and toll the entire population to St. Louis. Well, this was certainly an exaggeration, or there has been a wonderful transformation since that time.

I am not impressed with the idea that the country south of Springfield is adapted to the growth of agricultural products. There may be spots where the cereals and grasses can be successfully grown, but the country as a whole, can never hope to compete in this line with their more northern neighbors. In passing through this country we notice a luxuriant growth of wild bunch grass, similar to that found in Colorado and New Mexico. This grass is very nutritious. It dries up in the fall, and for winter pasture is equal to the best of hay.

Why cannot this land be utilized for stock raising? Why is it that men continue to battle with the polar climate of Wyoming and Montana, where 50 per cent. of their cattle freeze and starve to death in winter—while here is a country where there is scarcely any winter and where cattle will do well without feed almost the entire year?

We believe that in time this will become a great pastoral country, and stock raising one of its prominent and profitable lines of business.

The formation of South Missouri is wonderful to contemplate. It has every evidence from the fossil remains and shell formations found in the rocks, of having one time been the bottom of the ocean, which, ages ago, was thrown up by some mighty upheaval in nature.

We cannot see why citizens of Missouri and adjoining States will spend thousands of dollars annually in visiting the mountain gorges of Colorado, in climbing the Alpine heights of Switzerland, in basking in the sunny smiles of fair Italy and other famous resorts of Continental Europe, while here within a day's journey of their own homes can be found some of the most attractive scenery in the world.

Here can be found fossil remains, and petrified specimens of everything that grows upon the earth or abounds in the depths of the mighty ocean. Here is found grand old caverns that rival in beauty and pro-

portion the famous Mammoth Cave of Kentucky. And last but not least, it is here that we find the most wonderful spring in the world.

In California and Southern Utah there are several streams which suddenly sink and are lost forever to the sight of man; but history gives no account of such a tremendous body of water that wells up from the bowels of the earth in the shape of a spring. Could this body of water be followed in its subterranean wanderings through mother earth it might inform us of some great curiosities and hidden treasures, that possibly may never be revealed to the eye of man.

Who can say but what Southern Missouri may some day be famous as a pleasure resort?

I have not yet spoken of the most important industry that in the future will engage the attention of a large portion of the citizens of South Missouri. I refer to fruit growing and will only touch the subject incidentally, as in a former paper I had expressed my views.

And now, while writing at my home, near the most beautiful city in all the grand old State of Missouri, in imagination I wander down the Ozark range, way into old Arkansas and picture out, (horticulturally speaking) one of the grandest empires the world has ever seen.

An empire which is destined to supply future generations of a great portion of the country with the choicest products of this favored land.

Situated in the centre of this empire, rising in majestic proportions like the pyramids of old Egypt, we find that wonder of modern time, the Olden fruit farm.

We confess before visiting this farm to some misgivings as to the final result. But now we believe it will be a success.

It will not only be a success, but will stand as a nucleus around which will spring up similar industries, until the whole surrounding country will appear as one grand orchard.

It may be asked, what shall be done with all this fruit?

We answer, sell all you can, dry, preserve, can and jelly the rest. Why not supply this whole western country with canned goods, instead of shipping from Maryland and other points in the east? The starting of such factories might drive from the market the vile stuff with which the country is flooded, that which, containing not a particle of fruit, is sold as preserves and jelly.

Success to the Olden fruit farm; we believe it is doing more to develop the resources of South Missouri and bringing more emmigration than any other agency. We think there are sufficient brains, money

and push in this company to carry it through all difficulties. And while they are laboring for the successful accomplishment of this enterprise, let them be cheered by the fact that they are engaged in one of the noblest callings ever practiced by Adam's race.

BOTANY OF OUR FLOWERS.

BY L. A. GOODMAN.

[Read before the July meeting of the Missouri Valley Horticultural Society.]

In discussing this subject I shall take the liberty of embracing in it some of the fruits and wild plants of our fields as well as our flowers.

All vegetable creation is divided into two series. 1st, Flowering Plants, 2d, Flowerless Plants; the first series into two classes, 1st, Exogeneous, and 2d, Endogeneous.

The first class comprise those which grow from the outside by adding layers and having bark, wood and pith, forming annual layers; and second those which grow from the inside and form their woody portions in thread like tissues running the whole length of the stem, and if they live more than one year they add more threads.

I shall not give you the names of each of the following divisions with their meaning, but will try and show you how easily they are classified and followed from one to another, and if we make no mistake in reading the flowers and plants we can always tell where they belong.

We have, therefore, the following divisions :

CLASS, ORDER, GENUS, SPECIES.

Series :

Class—Sub-Class.

Order or Family—Sub-Order, Tribe. Sub-Tribe.

Genus—Sub-Genus or Section.

Species—Variety.

But it will not do for us to enter into this field of discussion or it will take a series of papers running through the summer, so we will content ourselves with taking up our proper subject and give you a few illustrations showing where some of our flowers belong, and show that what with some flowers, many, on first thought, pronounce an improper classification, is more seeming than real, and see how positively our botany settles the matter for us.

In giving you the names of these flowers and their places, I can give but a few, but shall try to mention those which we know and can recognize as familiar friends, giving them in the order of their families.

The botanical name of a plant, that by which a botanist knows it, is the name of the genus, followed by that of the species.

The name of the genus or kind is like the family name of a person. The species answers to his given name.

BOTANICAL FAMILY.

The Crowfoot family embraces such common varieties as Anemone, Buttercups, Larkspur Peony and Tree Peony.

The Magnolia family—The Cucumber-tree, Umbrella tree, Great Laurel, Tulip tree, Purple Laurel of Japan.

The Barberry family—Common Barberry, May Apple, Mahonia.

The Poppy family—The Poppy.

The Mustard family has among the flowers, the Wall flower, Ten Weeks Stock, Candy Tuft, Sweet Alyssum.

I cannot but mention here the close union of some of our most valuable vegetables as being so closely connected with our flowers ; and our fruits will also show a close union with the most beautiful of all our flowers.

Under this family come all of our cabbage, turnips and radishes.

Violet family includes all of our violets, pansies and sweet violets.

The Mallow family embraces our Tree Mallow, Hollyhock, Okra, Cotton Plant.

Geranium family includes these beautiful flowers of that name, and came originally from the Cape of Good Hope.

The real name of these is not geranium although that is the family name. They are of the genus *Pelargonium* and under this genus we have all the beautiful varieties known to the florist.

It embraces also all the scented leaved as well.

Our wild Cranesbill belongs also to this family.

The Camelia family embraces our Common Camelia and the Tea Plant.

The Soapberry family has three sub-orders: The Bladder Nut, the Buckeye and the Maple.

Under each of these are included all the varieties of each sub-order. As for instance, the Ash Leaf Maple, False Sycamore, Sugar and Norway. Also strange as it may seem the Heart seed or Balloon vine belongs to this family.

In the Pulse family among the flowers we have the Lupine in all its varieties. The Golden chain, Indigo plant, common Sensitive plant, and the true Accacias, the common Locust, Wisteria, Red Bud, Kentucky Coffee tree and Honey Locust.

Of vegetables we have the Peas, Beans, Lentils, Peanutt, White and Sweet Clover.

Rosaceae or Rose family is the most important of all the botanical families; the Flowering Almond, Meadow Sweet, the Rose in all its beautiful varieties, the Mountain Ash, Japan Quince, Cinque-Foil, Sweet Brier, Hawthorn.

The fruits, Strawberry, Raspberry, Blackberries, Almonds, Apricot, Nectarine, Plum, Apple, Pear, Peach, Quince and Cherry.

The Almond, Peach and Nectarine are of the *Amygdalus* or Almond genus, while the Apricot is of the *Prunus* or plum genus. Hence it is never right to call an apricot a peach, or a nectarine a plum, but more correctly the opposite.

You will notice that this family embracing so many of our fine cultivated fruits has none of the garden vegetables allied with them. Yet to a stranger in the study of the subject it is very hard to see any likeness between the cinque foil or sweet briar and our luscious pears and peaches; or between our mountain ash and the strawberry.

Yet when we follow the flowers themselves and their fruits they will unerringly bring us to its true order.

But I find that I will occupy too much of our time if we try to mention a small portion of our beautiful flowers and shrubs and we shall have to pass over many of them.

The evening Primrose family embraces the Fushia, Primrose and others.

Gourd family has in it the pumpkin and squash which are only distinct in their natures in the character of the stems; that of the pumpkin being grooved and that of the squash not.

The Saxifrage family include the well known Hydrangea, Deutzia, Syringa.

Honeysuckle family, the Snowberry, Snowball, Wigilia, Honeysuckle and Woodbine.

Composite family includes at least one-eighth or one-tenth of all our plants: the Aster, Daisy, Sunflower, Dahlia, Marigold, Pyrethrum, Feverfew, Chamonile, Thistle and Canada Thistle.

Heath family has the Azalea, Rhododendron.

Vervain family includes the Verbenas, Lemon, (Sweet Verbena) and Lantana.

The Borage family, the Forget-me-not and Heliotrope.

The Cyprus vine and Sweet potato are of the Convolvulus family.

Nightshade family embraces Bitter-sweet, Potato, Egg Plant, Jerusalem Cherry, Tomato, Peppers, Petunia, Tobacco and Deadly Nightshades, some of our best friends as well as worst enemies.

To the Olive family belong the Lilaes, Forsythia, English and Flowering Ash.

The Fig tree, India rubber tree, Mulberry, English elm, Osage Orange, are of the Nettle family.

The Pine family embraces the Pines, Spruces, Cypress, Yew, Cedar and all of their classes.

The Amaryllis, Iris, Lily and Grass families are all familiar to us and come under the second class or endogenous plants, and it will be impossible for us to follow this farther lest we weary you.

When we once begin this study we find such a broad opening and extensive field that we hardly know when and where to stop. I hope therefore that I have not wearied you, but that I can be able some day to give you a series of articles which will be of some benefit to each and all of us and awaken in the minds of the young a love for this study. For let me assure you that there is no more inviting field for both profit and recreation than in this beautiful study of botany. It is such a true science that like mathematics, if you work without mistake you will surely find your goal.

L. A. GOODMAN.

OUR FLOWERING SHRUBS AND PLANTS.

[An essay by Miss Mary Holsinger, read before the June meeting of the Missouri Valley Horticultural Society.]

"Flowers," says Bishop Cox, "are words which even a babe can understand." Truly, by their beauty, they convey a meaning as apparent as though expressed by our language of speech. But, as many of our simplest words, with a well known English significance, when traced back to the root in another language, are found to have their origin in a queer custom of ancient times, or an act of some good, great man, thus giving to the ordinary definition a deeper shade of meaning, so the prosaic little plant frequently has a history, which, if known, would redeem it forever from the crowded ranks of objects which we designate unattractive.

The story of its migration from a far different clime, its reception in a foreign land, the changes it has undergone under the ever-watchful care of the gardeners, these topics are surely worth a moment's notice.

If we knew how much of beauty and worth is oftentimes stowed away under a plain exterior: if we realized that familiar objects, upon inquiry, reveal so much that is strange and wonderful: if we guessed what struggles, what cherished hopes and ambitions give color to the inner life of a quiet friend, we would more earnestly strive to become acquainted with the common place things and people about us.

If we knew what tender romances are folded in the bright, young leaves of our flowering plants, and how much influence, always for good, they have exerted over the lives of other people and nations, the happy offsprings of mother earth, would be nourished ever more tenderly.

The first of the many blossoms that gladden our eyes with the earliest touches of spring green, is the snowdrop, whose single, fragrant flower on a nodding pedicel is sometimes seen as early as February. It receives its name, not from its resemblance to a drop of snow, but to the ear drops worn by the ladies of the sixteenth century. The

"winter's timid child," as it has been happily styled, is a native of Europe and is found in great abundance in England.

The bright little crocus blossoms is another which

"Comes before the swallow dares,
And takes the winds of March with beauty."

"Cheerfulness," the gay little flowers symbolize, and certainly no word can better portray the effect produced by their first appearance. The beaming glances which they throw at the smiling spring sun seem to deny the truth of the mythological legend which affirms that they bear the name of an unhappy lover, whom the gods in pity changed into this flower. Surely, they were never unhappy.

Then there are many shrubs "that, at the call of spring, burst forth in blossomed fragrance." The flowering almond, in little rose-shaped forms, clad in pink robes, climbing all over the stalk that bears them; the bridal wreath, its tiny white flowerets forming a thick covering for the long, slender branches; and the spirea, always a most welcome spring guest.

The lilac and mock-orange both belong to the genus *syringa*, though the resemblance is so slight one would hardly expect to find them so closely related. The term *syringa* is from a Greek word signifying *pipe*, probably given to this shrub because in early times the wood was used for making pipe stems. A century ago both the lilac and mock-orange were known in old English gardens as "pipe-tree."

The common lilac, a native of Persia, was carried from its rich eastern home to the countries of Europe in the sixteenth century, to be transplanted again in North America by the European colonists, where it is now half naturalized. Its profusion of bouquet-shaped flowers, with their sweet perfume and delicate colors in white, violet and purple, makes it beautiful both to the eye and to the heart.

The creamy white petals of the mock-orange with their centers of golden hue, are not less welcome a little later in the season. The botanical name, *syringa*, has been retained for this shrub in spite of the remonstrances of the botanists, who claim that it more properly belongs to the lilac. Its classical name, *Philadelphus*, was once borne by an Egyptian king, who was celebrated for his untiring affection for a brother; for this characteristic the *syringa* was appropriately consecrated to his memory. Hence, it will always be known as the symbol of "fraternal love."

The snowball, otherwise known as the gueider rose, is found in its wild state in the cooler parts of Asia, Europe and North America grow-

ing upright, from two to ten feet in height. Each branch is terminated by a large cluster of white flowers, those in the center being small and perfect, while those of the margin are much larger, but sterile. The perfect flowers are followed by a bright red, berry-like fruit having one flat smooth stone. When cooked with sugar the acid fruit makes a nice dish known as bush cranberry.

Years of cultivation have so altered the plant that in the guelder rose of our gardens, the flowers are all like those of the margin in the wild plant, thus changing the original cluster to a spherical ball of white corollas all of which are sterile. Its appearance gives to it the popular name.

The snowball, melting as the heat increases, fall to the ground, thus making way for the numberless leaves and flowers which light-hearted June carries in her arms.

Go into the summer flower garden and notice what varieties take the lead to beautifying the glad world.

First of all the brilliant geranium, always the standby of both hot house and window gardener, claims attention. Here at your foot is a plant whose graceful form, smooth glossy leaves, and, above all, the delicate odor tells you its florigraphical sign is "preference." There is a plant equally beautiful, but bending to inhale its sweet breath the disappointed experimenter finds it scentless, and understands why this otherwise perfect flower is symbolical of "deceit."

Is it not strange that the scarlet geranium is regarded as the emblem of stupidity? Could not the poet find some more suitable meaning for this most prized beauty of all its kind?

The plants generally known as geraniums are by the botanist divided into three classes, *erodium*, *pelargonium* and *geranium*, the English signification of the terms being heron's bill. The names are given from the fancied resemblance of the flowers to the appendages of these birds. Those most cultivated with us belong to the family *pelargonium*, or stork's bill. They are brought from the Cape of Good Hope.

Standing near its more brilliant sisters, quietly emitting the odors that makes fragrant all the air about, is the *heliotrope*, a flower as sweet as the word of which it is emblematic, "devotion." *Heliotrope*, derived from two Greek words meaning "sun" and "to turn," was the name given to this plant, because it was supposed to turn continually to the sun. The origin of the flower is ascribed to the death of Clytie, who pined away from hopeless love of the sun god, Apollo. Nine days she sat upon the ground, it is said, with her eyes riveted on

the god, till at length, her body cleaving to the earth, she was transformed to

“A flower resembling the pale violet,
Which with the sun, though rooted fast doth move
And being changed, changeth not her love.”

Here is a much loved little flower whose face is of tender blue, looks pleadingly out from among the stronger plants. In the legendary lore of Germany there is a romantic tragedy connected with its christening.

This is the story which the silver-haired peasants love to tell their grand-children as they gather about them, their hands filled with the flowers blooming so abundantly in the fatherland:—It was a summer's evening long, long ago. A knight and his betrothed were walking on the emerald banks of the swift flowing Danube. They paused to gaze at the brilliant tinted western sky across the expanse of quiet, deep water when a spray of small blue flowers floated by with the current. From the lady there was an exclamation of delight, a half expressed desire to possess it, and the mail clad warrior had plunged into the river's bosom and grasped the coveted blossoms.

He turned smilingly to the shore, but the heavy armor so weighed him down that he was unable to remount the slippery bank. Finding that in spite of all his efforts he was fast sinking, he threw the sky blue spray ashore to his agonizing lady love, crying, as he sank forever, “Forget me not.” And so the flower was named. The plant is especially dear to the Germans, who place it upon the grave of their departed darlings.

With so many floral beauties about us, rich, both in color and perfume we cannot help wondering why a little scentless floweret like the daisy should receive so many plaudits. Perhaps Montgomery guesses the real cause of their popularity when he sings

“The rose has but a summer's reign
The daisy never dies.”

A grand old Gaelic poet tells us this “tiny bulb of golden hue” was first sown over a baby's resting place by the dimpled hands of infantine angels. With such a celestial origin ascribed to it the

“Wee little rimless wheel of fate
With silver spokes and hub of yellow.”

could not fail to be admired.

Traveler's climbing Pike's Peak during the summer months have noticed the forget-me-not and daisy blooming along side by side at the very edge of perpetual snow and ice. Here, under the dreary shelter of an overhanging rock, they smile contentedly at the frozen mountain top, never doubting that "God is in the shadow, God is everywhere."

Lilies without their graceful form and varying tints would be highly esteemed for the number of times they are mentioned in the Bible. Christ tells us to "Consider the lilies." For this we would gladly love and cherish them were they robbed of their majestic beauty.

But the flowers which has ever and for all future years will continue to take the lead in decorating our homes, is the rose. By common consent it has been voted the loveliest amongst the children of Flora. Its home is in the orient, whence it has traveled westward and now opens its glowing petals to the sun in every quarter of the globe. Its varieties of form and color are innumerable, some of which are exceedingly popular one season, others another, but all are admired. The Gen. Jacqueminot, a rich crimson queen now stands at the head of what is considered the most valuable type.

In speaking of our tendency to give grand names to these floral favorites, some one has said, 'Now the favorite roses are all Dukes and Duchesses, Counts and Countesses, Lords and Ladies, Generals and Senators, till we wonder if there are any plebeians left.' After all is this not a beautiful way to perpetuate the names of our great and good men and women?

The summer garden also produces verbenas, phlox, beds of fragrant mignonette, an endless variety of flowers grown from the seed.

Royal hearted violets bloom profusely. Stately Dahlias are here as much at home as in their native Mexico.

Summer blooming shrubs are not wanting, honeysuckles are everywhere to be seen, and the modest flowers of the calycanthus and jasmine brighten up the quiet nooks.

Of the gaudy but scarcely less admired "common" flowers Henry Ward Beecher says, "As for marigolds, poppies, hollyhocks and valorous sunflowers, we shall never have a garden without them, both for their own sake, and for the sake of old-fashioned folks, who used to love them."

The sighing fall winds blight the tender summer flowers, but waken to new life the more hardy bloomers of the fall, among which the aster and golden rod are prominent. The aster is a large family embracing two hundred species, one hundred and fifty of which are native of America.

Beside this hardy bloomer is another flower that is the autumn's harbinger and pride. When the meadows have become brown and seared

“ Then how bright

How deepening bright like mounting flame, doth burn
The golden-rod upon a thousand hills.”

Many of us who love and admire the beauties of nature, and especially these jewels with which she is so plentifully adorned, care for them only in a passive way, so that little good comes of our fondness for them. The flowers we pass by the wayside make us so much the better but we need their constant companionship in our homes, and so few are willing to give the attention needed to secure their healthy, happy growth about the door yard.

He who would have beautiful flowers in his garden must have beautiful flowers in his heart. He must love them well and always. He must have not only the glowing admiration, the enthusiasm and the passion, but the tenderness, the thoughtfulness, the reverence and the watchfulness of love.”

BATES COUNTY HORTICULTURAL SOCIETY.

INAUGURAL.

Ladies and Gentlemen of the Bates County Horticultural Society:

In assuming the duties and responsibilities of the office of president of the Bates County Horticultural Society, I earnestly ask such an active co-operation of all zealous lovers of horticulture, and of everyone sincerely interested in the growth and improvement of the material wealth of our county as may enable us to become the most useful society in our State.

Already we have made some progress, but we need not boast of our achievements. Our record for usefulness may be seen and has

been recognized in our influence over the commercial interests of our county. Encouraging words and flattering encomiums are extended to us, not only by our county press, but we have been honored by praise, not unmerited, we hope, through organs of high standing and popularity in other parts of our State.

We have just begun our career. Favored with a county of great fertility of soil, rich in mineral resources, so situated as to be enabled to reap the first benefits of the newly occupied territories on the west; is easy and direct communication with the markets of the east. Our duty to ourselves and our countrymen is to seize and apply every circumstance or opportunity that may offer to enable us to make rapid progress in the development of the resources of our county.

Zealous, well directed effort, not only brings the reward of commercial gain, but carries and cultivates the enabling influence of public benefaction.

While acting as members of this society we cannot work from selfish motives if we would. He who plants a tree or a shrub, or he who influences his neighbor to do so not only adds so much material wealth to the value of his own home, but makes an investment at the same time that adds to the wealth of his county and state.

He who ascertains by years of toil and actual experience, what trees or plants we may and ought to grow and what methods of cultivation are most successful, and cheerfully imparts his knowledge to his neighbor, freely conveys just as many dollars to that neighbor as it might have cost to gain, the same information through the channel of long and weary days of toil, of misdirected effort and many disappointments.

If then we love our neighbors as ourselves—if then we have that sincere desire for the growth and prosperity of our county, that as true patriots we ought to possess, and highest and most important to each of us who are members of this society, if we would expect such success as we ought to expect we must work as a unit with an unfaltering determination that our infant society shall carry off the banner as the first, the strongest and most useful society in our State.

C. I. ROBARDS.

WHAT BENEFIT SHALL WE DERIVE FROM PLANTING NEW VARIETIES OF GRAPES?

BY O. J. WELTOM.

Mr. President, Ladies and Gentlemen:

In opening this subject for discussion, I find there are two heads under which it is advertised; the first, as I understand it, is, "What benefit shall we derive from planting new varieties of grapes;" the second, as is printed in Colman's Rural World, is, "What varieties of grapes are best to plant for family use."

The grape is one of the oldest fruits we have any account of (unless it be the apple that mother Eve gave to Adam), and that was a mere supposition that it was an apple. We have just as good reason to believe it was the bread fruit as an apple, and I am inclined to think it was the latter; for the apple is found in more northern climates. We have mention of grapes in the days of Noah, and they must have been in use long before that, for we read of their being made into wine, and we see the bad effects of it in his life; we also read of sour grapes and grapes of gall. If we are to gather any idea of the grape of that time, in the world's history, it must be very little like the grape of to-day—sweet and luscious. At what period in our world's history they began to improve upon this fruit, I have never learned, but perhaps the last century has done more to develop new varieties than the five thousand years previous, till to-day the kinds are like the apples—numbered by the hundreds. But what interests us more particularly is what do we gain by planting and increasing the number. Much in many ways: First, we are to-day standing upon the threshold of fruit culture; though the last twenty-five years have been a marvel of success and brought so many and choice varieties into use, the possibilities are good for still better and sweeter fruit in the near future. So many of the finer sorts grown to-day are local in their productions and subject to disease; so we should keep adding until we find the best possible sorts for all localities, until we can equal, if not excel, those of sunny Italy and our clusters like those brought from the promised land. To this end every nurseryman and vineyardist should be encouraged in all

proper ways to produce the best new varieties. Premiums should be awarded to all kinds that deserve merit. We often hear it said, "I have a few Concords and they are good enough for me." This kind of logic would, if put in practice, drive us back to ox teams and wooden mold-boards; to cut our grain with sickles and mow our grass with scythes; to put an eternal veto upon all inventive genius and destroy all science.

In this age of progress the grape is considered among the finest of the many choice fruits, and for healthfulness none excel, nor are superior. A dish fit for the king and alike good for the peasant. But nearer to the question, "What benefit shall we derive from planting and increasing these newer varieties?" We might as well ask what benefit it is to the farmer to keep a good horse over a poor one, or fine, well bred stock over the Arkansas knot heads, or to have a good, neat substantial house, over a log hut or board shanty—what good? They make our lives sweeter, longer and more cheerful; they add to the refinement of our children and the community in which we live; in every way they make society better. Who would think to-day of inviting their friends to a feast of good things and then set before them a wild grape of the forest, or even our Concord or Isabellas, when we can furnish them with something better. Our rich Golden, Poeklington, fine Duchess and Jefferson are nice, but the day will come when our children will wonder at our idea of fine fruit and look back upon us as we do upon our ancestors, and cry foggyism. Again, we should plant new varieties, for in this part of the world, and especially in this part of Missouri, we can grow so many of the finer sorts that will not stand the cold of more northern climates, and in our country we have fewer enemies to contend with than they have in many of the older countries. Again, in a financial point, we should plant the best, as they are always the cheapest. For example: The Niagara and Empire State is producing more pounds to the vine than the older sorts, and the average price per pound in the markets for this season was 14 5 8 cents, while the Concord, Clinton and that class only brought from 3 to 10 cents, and there are many other varieties that promise fair in production and quality, with the Niagara and Empire State. When we can make two blades of grass grow where only one grows now, we are a blessing to humanity. But you ask, will not the markets be overstocked with this fair fruit. Never; for the best it will surpass all poorer varieties; hence the wisdom of leaving first principles and going on to better things. Again, the farmer will ask, when shall I stop planting these newer kinds? When the time comes that you cannot improve your

flocks and herds by closer attention and introducing better strains of blood, then, and not till then, the law of progress will ever urge us on to improve our homes and bring this world of ours as near as possible to its highest perfection. As to what shall we plant for family use—plant the best and all of them you can get. To the friends of our society, I say, plant, take care of what you plant, do good and be happy.

WOMAN'S WORK IN HORTICULTURE.

BY MISS IDA CRUME.

True womanhood is ever ready to respond to calls for the amelioration of the condition of mankind. In the sick room, in the contagious atmosphere of the hospital, and even amid the thickest showers of deadly missiles on the battle field, her presence, her tender care and soothing words have been recognized as the most powerful aids to recovery, or the most quieting sedatives for the dying patient.

All true and noble women are heroines by nature, ready for any emergency that may arise to develop their latent powers. Heroes and heroines are creatures of circumstance patiently working until the great event of their lives shall suddenly arise to spring into action this hidden power, unknown, perhaps, even to themselves, which when aroused may electrify the world.

Look, for illustration, at the case of Miss Long, the Missouri heroine in the rescue of the lost children. Until the very moment when the madman had left them to their fate of certain death in the trackless forest and furious freezing midnight storm, Miss Long had never been known outside the range of her own quiet neighborhood. The next morning to her own innocent surprise the little lady awoke to find herself a heroine. She had a brother, why did not he become a hero by

the same circumstances that unfolded a new life to her; simply because he did not possess those finer intuitive perceptions, those irresistible emotions of sympathy that lay like dormant fires in the heart of the girl. This uncontrollable sympathy for the innocent lives in peril, when once aroused in her woman's heart, blinded her to every sense of danger for her own life. While the boy tried to dissuade, she had no time for reason and no reason to give. She wasted no time in an effort to awaken sympathy in others, but only acted. She rushed to the rescue. Her brother, like a brave body guard, followed at her command. A half hour's time for deliberate thought or preparation might have proved fatal to the lives of two innocent children, and the world would have lost a heroine.

By what motive are women actuated to become prominent in the cause of Temperance? certainly not from a desire for notoriety, for true woman's nature causes her to shrink from publicity.

The truth is apparent that women see that the great crises have come when our nation has become so endangered by the cunning wiles of a hord of unprincipled rum dealers, that she must fly to the rescue.

Man is moved by the influence of deliberate calculation and well laid plans; woman acts from the impulse of the moment.

Man may be represented by the machinery of the clock; woman is the pendulum that starts the machinery into action.

Woman's quick perception of the requirements of the hour prompts a way for speedy relief and makes no delay until the work is begun.

Her work in horticulture, however, is easy and delightful. In this labor she is accomplished by the memory of the perfume of the flowers of the garden and the fruits of the field. As the first woman was created in a garden we may believe the Creator had some good motive in placing her there.

If she may not till the soil or dress the vine, she may at least design the arrangement of the plants or suggest varieties for planting.

Her province may be that of a useful and friendly adviser for man. If he needs encouragement she may be able to speak some cheering words or offer some suggestion for his benefit that may prevent failure or disappointment.

Woman's work in horticulture may be so governed by her individual surroundings or circumstances that it cannot be defined or anticipated. If she have her heart in the work her intuitive perception will cause her to do the right thing when the moment for action arrives.

What woman may do in horticulture may be best shown by what she has done and is doing. By her influence and at her request the

rose, the mignonette, the pansy and the verbena nod their heads and cast their perfume at the guest who enters the gateway.

Her presence is indicated by the well-kept lawn, by the climbing rose and honeysuckle and the beautiful beds of geraniums with their endless display of summer bloom.

Not that she does all this with her own hands, but because she is there, by some irresistible influence, call it what you may, the work is accomplished. With few exceptions men uninfluenced by woman would fail to supply their families with an abundance of the delicate fruits of the garden.

Most men plead they have not time to plant a strawberry bed or prepare a supply of small fruits for their families, but by woman's influence these health-giving fruits have become so abundant that nearly every household in the land revels in them all summer long. Out of their season they become a good reserve for winter use.

Then at last who but she has planted those little mementoes of love over the graves of the dear departed ones, with one last effort to keep their memory forever green.

OUR BIRDS.

BY A. C. SKINNER.

BUTLER, MO., February 20, 1886.

Mr. President, Ladies and Gentlemen :

Since our last meeting I have been chosen as one of a committee of three, appointed by the president of this society, to report on Ornithology and Entomology.

This being the time of year when bugs and insects are taking a rest and most of the birds are enjoying a southern clime, I have not much to report from observation during the last month. I have seen a few birds, such as the Jays, Robins, Blue Birds, English Sparrows and a few others that stay here, except in severe cold weather.

While the most of our beautiful songsters have gone south to enjoy the sunshine and try and forget the cruelties imposed upon them during our last summer by their nests being robbed and their young imprisoned. Cannot we as a society devise some means for their protection by the time they return in the spring. There is a law that protects birds and nests, and the enforcement of that law is what we want, if necessary. Birds will become exterminated if something is not done to stop the wholesale destruction of eggs as was practiced by boys during our last season, in collecting and shipping them east as an article of exchange. This is not all. There are thousands of birds killed annually for decorative purposes—to gratify some odd fancy. It is all wrong. All insectivorous birds are friends and we should protect them, and any person or persons found in any way injuring them should be punished according to the crime.

If there are any who do not realize the value of birds and the amount of worms and insects destroyed by them, just watch the Mocking Bird, Thrush, Robin, Cat Bird and many others, and see how busy they are collecting food for their young during the summer. Commencing with the early dawn and continuing their warfare until dark; always cheerful and happy when unmolested. But the life of a bird is a perilous one; they have many enemies and very few active friends. Man is one of their greatest enemies. Man, that intelligent, highly cultured and sympathetic being, who will follow a Robin across a forty acre lot with a double barreled shot-gun to shoot it for taking a few sour cherries—cherries that the same Robin has helped to protect since the unfolding of the first leaf until the ripening of the fruit. If he fails to shoot him, as he does sometimes, he will instruct one of his brightest boys to hunt the marauder's nest and destroy it, thereby hoping to get rid of the grief. Oh, how selfish. Our domestic animals are fed and provided for, but the birds, which are much more valuable than some of our animals, must stand back and not take anything except what we cannot use for ourselves. Such discrimination is wrong. Birds should be rewarded according to their merits.

I would like to call attention to the bothersome Mocking Bird—one of the most interesting birds in the world, as well as one of the most useful to the horticulturist. Imitating the notes of many birds almost perfect, this bird is highly prized in the cities as a singer, and commands a high price. But here they are too common—we get their beautiful warbling free, therefore they are not appreciated nor protected as they should be. Boys are allowed to cage their young and peddle the poor little innocent things on the streets, and if they can't

sell them they are taken home, there to die in a filthy cage by starvation and neglect. Such cruelty to young birds should be condemned by every intelligent man, woman and child of our land, and I hope the time is not far distant when there will be but few who are not willing to speak and act in their behalf.

Who would not speak in defense of the birds when they think of the many days spent in their childhood under the leafy bower of some spreading tree or wandering through the shady groves, where all nature seems to be animated by the cheerful melody of the many song birds as they flit from branch to branch, singing forth their praise.

Those are days that are treasured in our memory—written with indelible ink on the pages of our life, never to be forgotten. Such will be the memory of our children when they become men and women, if they are taught to value each bird according to worth. There are many children who are taught to love and cherish the beauties of nature, such as birds and flowers, and from such children we may expect noble men and women.

A. C. SKINNER.

EARLY AND LATE CULTIVATION OF TREES AND PLANTS.

BY JOHN B. INNIS.

Upon a correct understanding and a proper application of this subject of cultivation depends our success in horticulture, and a subject of vital importance to every cultivator of trees and plants. Cultivation of the soil by mechanical means is simply separating its particles, thus fining and pulverizing and putting it in the best possible condition for the small hair like roots, to make their way through it in search of food and moisture. The effects to retain moisture, the particles of earth being separated admits the air, which leaves a portion of its moisture, especially during the night, and slow to throw off or give up its moisture. A pulverized soil is cooler in hot weather; the part-

icles of earth as they are separate conduct the sun's heat but poorly, as compared with a hard, compact soil, which can be proven by examining the different conditions of soil on any hot summer day. It also assists the capillary attraction of moisture from below and retains it, and is not so easily carried away by the drying winds during the day. Now one of the difficulties to be overcome in growing trees and plants in our long, dry summers is drouth, hence the need of cultivation to prevent its deleterious effect, but how long should this cultivation be kept up, is a question upon which all are not agreed. I would say as long as the drouth and heat lasts, or the weeds put forth. Weeds should not be allowed to grow, as they pump up and evaporate through their leaves an immense amount of water. If we quit cultivation early, a luxuriant growth of weeds spring up, take up and evaporate its moisture, leaving the ground hard and dry, forcing the tree to stop growing and into permanent ripening of wood, and poorly supplied with stored food. Should this be followed by fall rains and warm weather, a new spring-like growth is started, the buds swelled and sometimes burst into bloom, the whole organism filled with crude sap, which has not time to thicken nor the wood to ripen up properly before winter. To produce a healthy tree a steady, uniform growth must be kept up during the entire growing season. Yes, but sir your late cultivation will keep up a late growth which can not ripen before cold weather and will be winter killed. It will prevent a premature ripening and keep the tree or plant growing until it is ripened according to the God given laws of nature. Mulching is universally recommended to prevent the earth drying and stopping the growth, and who would recommend removing it in the middle of summer, for fear of too late a growth. Now, cultivation and keeping the ground fine acts as a mulch and a far better one than that made of straw. Cultivation of the soil increases its fertility by exposing it to the elements, thus making its plant food available. Many persons believe the roots literally eat their food, and that it should be placed in direct contact with them, as we frequently see manure placed immediately around the trunk of the tree, which can do but little good. It is the fibrous roots that take up its food and that in a very thin crude state.

A fertilizer must be spread as far as the roots extend, that the extremities may get the benefit. Corn or late potatoes would be a good crop to grow in a young orchard; when it is large enough to bear, then sow down clover and pasture with hogs or else mow and let lay on the ground as a mulch. In no case should the grass be entirely removed, to let the heat suddenly in upon the ground, drying and destroying

many of the fibers that had sought the surface soil on account of the shade given by the grass. No small grain should ever be grown among trees for the same reason. If the ground is allowed to get very hard and dry, many of the fibers will die and the vitality of the tree be injured. The same effect will be produced by the tree standing in water, as the fibers will not live in water. (Aquatic plants have no fibers.) Hence the need of drainage, if not naturally so, artificial means must be used to get rid of all stagnant water in the soil.

A few words on the raspberry and I am done.

Some members of our society complain of the Turner winter killing, when ordinarily it is iron-clad. Its lack of hardiness is caused by lack of cultivation, the very cause I have just described. The red raspberry is objected to by some on account of its suckering. This is easily overcome. When the suckers are a few inches high, hoe or plow them off, leaving just enough to bear next year's crop. In spring cut back to thirty inches of the ground, and an occasional plowing during the summer, and the Turner will go through winter without injury. In neglect of cultivation it is the summer heat and not cold that kills. The Black Caps require nearly the same cultivation, except the young growth should be pinched at 18 or 20 inches, thus causing it to throw out laterals near the ground, and less liable to be blown down and destroyed than if not pinched. Cut back the laterals in early spring to within about a foot of the main stock, at the same time cut away the old canes—those that bore fruit the previous year. Now the cause of winter killing of trees is either an excessive amount of water in the soil, or a soft, late growth, winter finding them with their structure full of crude sap that has not had time to be assimilated and the wood hardened. But if a steady growth had been kept up during the growing season, nature's laws would have stopped its growth and properly ripened it up in season and prevented injury by the latter cause. There is no such thing as luck in growing trees but a continual persistent work and that in conformity with the immutable laws of nature.

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MARKETING SMALL FRUITS.

BY CHARLES I. ROBARDS.

Ladies and Gentlemen of the Bates county Horticultural Society:

All the remarks I shall make on this subject shall be based on the proposition that there are enough consumers waiting and money ready for all the fruits yet grown in the land. Yea, more than this, that fully in proportion to the increase of production of this character of fruits for many years to come, will there be an increased demand sufficient to absorb all such crops. Over production is not general. Localities it is true are in danger of being over supplied because of concentration of producers, without markets. The consequences of this state of affairs may at first seem to threaten disaster. But this in time will to a great extent regulate itself.

The various branches of commerce are so related to each other as that wherever a marketable commodity is producing sufficient quantity to invite transportation there will be no great delay until suitable means of exportation seek it. To convince ourselves of the truth of this theory we have only to refer to our own experience in the marketing of our crop of apples during the past few years. In 1884 our apple crop begged shippers to take it at 25 cents per bushel for best winter fruit. In consequence of this, together with the advertisements brought about by our local society and the aid of the press, the outside world was informed that we were capable of producing more apples than we could consume.

The result, as you all know, has established the belief that we need not fear that good winter apples will fall below 40 cents per bushel for many years to come. Thus in the growing of small fruits for market, could we induce growers to unite in a common effort not only to produce much larger quantities as well as to plant the best varieties, we might expect to realize sooner the same result in the marketing of our small fruits. Just now we stand only with reference to a home market, not enough to ship in a proper way, too much, perhaps, for home consumption.

To prove that this is the case we have only to refer to the market facilities of other States. Illinois, with no better climate than ours,

sends annually from many of her towns, daily, whole trains of strawberries in their season. There, in such localities as have gone largely into growing small fruits, instead of three or four acres, many men manage strawberry fields from fifty to one hundred acres. This business certainly could not be maintained without good shipping facilities and without adequate markets. By our present rude methods of shipping, where perishable and delicate commodities are piled indiscriminately with all manner of rough freight, and all handled with the same reckless haste, we are just as certain of loss when we place our property in the hands of our common carriers as we would be if we placed it in the direct front of a double distilled cyclone. Better as we are now situated gather only our best fruits, give full rounded measure, get the best prices obtainable and when we cannot realize prices sufficient to pay something over the cost of growing and marketing, let the remainder stay on the vines to enrich the land for the next year's crop. Where such valuable and desirable crops can be grown in such profusion, and where the soil and climate have been proven to be so lavish in return as ours of this portion of the west, we need have no fear but that the thousand who need and cannot produce what we now waste, will some day near at hand open our doors with gold for our wares. Then, too, will canning factories be established. Larger and other towns will be built in the land. By the free use of healthful and appetizing berries in their season, a habit will be formed for the more general use of them, thus with the growth and increase of large supplies will come new and large demands until we will be permitted to look back on what we are now doing as baby work in comparison with the great enterprises that lie just ahead in that near future when our resources are properly advertised.

WILL IT PAY TO PLANT PEACHES, EITHER FOR HOME USE OR MARKET?

BY HENRY SPEER.

MR. PRESIDENT—This question has been asked in our society and has been referred to me to answer in a paper upon the subject.

I have no doubt the same question has been asked thousands of times, in various ways and by different persons in the last few years, in public meetings, in private conversation, and in the minds of those contemplating planting an orchard, and no definite answer can be given.

The question, will it pay, is the one uppermost in the human mind, particularly in the American mind; and any enterprise that does not hold out some promise of pay will not have many followers. Now, in order to more fully understand our subject, we must inquire into the nature of the peach. The true home of the peach is in the milder parts of the temperate zone; while not a tropical plant (as it does no good in even the extreme southern parts of the United States); yet it will not endure very great extremes of cold. When the thermometer falls to 10 degrees below zero it is almost certain death to its fruit buds. Though partial crops have been raised when it reached 15, but when it drops to 20 there is no hope for fruit, and unless the trees are in very good condition to meet it, we can say good bye to them also. Now, I believe there are none to deny that our soil is adapted to the peach. Neither have I ever heard it questioned that our spring and summer seasons are favorable. The peach buds and wood usually ripen up well in the fall and go into winter in good condition. So it appears to me that all the conditions are very favorable, except one, that is the north winds of the winter sweeping down over the plains of Dakota, fresh from the icy regions of the frigid zone, cause the temperature to drop a little too low for the peach; and it appears from the treatment that the peach is receiving of late years it has got too low for the planters also. Now if I am correct in my premises, it resolves itself into a question of meteorology; in other words, are we to have a continuation of the kind of winters the past four have been; if so, we may as well give up the peach at once, as it will continue to be a

failure. On the other hand, are not our seasons passing round in a circle, and may we not confidently look forward to milder winters? The time has been when the peach was one of our surest crops, and why may it not be again? The conditions are more favorable now than then. In some of the more eastern States the peach failed where it had once succeeded and they have never succeeded in reinstating it and probably never will. The reason is obvious. The vast forests which once protected that country and modified its climate, have been removed and will never be replaced; while with us, it is different. The orchards, hedges and groves, which have been planted will more than balance the native timber destroyed. So that in this respect we are in better shape than when the first white man set foot on our soil, and this process is going on year after year to the west and northwest of us. I look forward with much confidence for a change for the better and I am planting some each season. Should the peach come in again, I look for prosperous times to our peach growers, as most of the enemies of the peach have perished for want of something to feed upon. There is one more question I wish to touch upon, that has received very little notice; yet it is one which I have no doubt is of great importance; that is the selection of hardy varieties. We all know some varieties of apples are hardier than others; the same is true of blackberries, raspberries, grapes, and in fact all other fruits; but when it comes to peaches, it has hardly been considered. I am aware that they have failed for the last few years, but that does not prove that some may not succeed when others fail. In conclusion I will say, plant peaches; plant them both for home use and profit; plant some every year, and if you don't raise any peaches you can raise some stovewood and have an approving conscience—you have at least tried. The peach is too fine a fruit to give up without a mighty effort.

WHAT VARIETIES OF APPLES SHALL WE PLANT FOR PROFIT?

BY G. W. JOHNSON.

MR. CHAIRMAN, LADIES AND GENTLEMEN: At our last meeting our worthy chairman assigned to me the duty of reading an essay before this society at this meeting to-day, and gave me for a text, "What varieties of apples shall we plant for profit," thinking, no doubt, that I could so far overcome my innate bashfulness as to get up and say "Why, Ben Davis, of course."

Well, I thought so, too, but when I got home and wrote it down it looked as though my essay would be rather short; so, without consulting the society I took the privilege to change the heading, hoping by this means to be able to spread it out over more paper, whether to your edification or not, I leave the society to judge.

Fourteen years experience in growing apples for profit in Bates county, Missouri.

In November, 1871, I landed in Bates county with a view to making it my future home, and the next spring I planted out the following varieties of apples—for profit, of course: For summer—Early Harvest, Red June, Kirkbridge, Red Astrican, Early Strawberry, Benoni, Sweet Bough and Cooper's Early White. Fall—Maiden's Blush, Porter, Bailey's Sweet, Pennsylvania Red Streak and Fulton. Winter—Ben Davis, Wine Sap, White Winter, Pearmain, Rawles Janet, Huntsman, Missouri Pippin, Roman Stem, Nonesuch, Fallawater, Pryor's Red, Baldwin, King of Tompkins County, Spitzenburg, Willow Twig, Milan, Yellow Bellflower and Lady's Sweeting. Two years later I planted Sweet June, Emma's Favorite, Henning's Striped Sweet and Red Sweet, Fameuse, Fall Pippin, Whittaker, Lawver, Gen. Lyons, Lansingburg Pippin, Northern Spy, Winter Sweet, Paradise and Gilpin. Two years later, or ten years ago, I added Grimes' Golden, Nickajack, Rome Beauty, Smith's Cider, Stark, White Winter Pippin, Lady Finger and Chronicle.

My soil is light and sandy and generally considered good for fruit.

For several years after planting I cultivated in corn and potatoes, then seeded down in clover.

Now for results: Early Harvest—Good tree, early and prolific

bearer. Red June—upright grower and good bearer; Red Astrican—bore this year, for the first; Early Strawberry—ditto; Kirkbridge—good bearer, but fruit small; Cooper's Early White—good bearer and apples large and fine; Sweet June—poor tree and fruit small; Emma's Favorite—hardy tree, annual bearer, fruit good size, smooth and best quality.

Fall: Bailey's Sweet—fruit large, and fine and good bearer; Fal-ton, fourteen years planted—first fruit this year; Rambo—slow coming into bearing, but very full this year and quality very good; Fall Pippin—not come into bearing yet; Fameuse—fruit small and irregular; Maiden's Blush—good grower, good bearer and fruit unsurpassed by any; Pennsylvania Red Streak—not desirable and fruit uneven; Foster—the prettiest tree I have in the orchard; fruit large, uniform in size and best quality; Ben Davis—splendid grower under any and all circumstances, free from borers, early and annual bearer, fruit large and showy and commands the highest market price; Baldwin—poor grower, no good; Yellow Bellflower—ditto; Nonesuch—worse and worse; Fallwater—tree winter kills and is a shy bearer; Huntsman—poor bearer; Jonathan—good grower, good bearer and fruit best quality; King of Tompkins County—poor grower and worse bearer; Lawyer—good tree, but poor bearer; Missouri Pippin—one of the first to bear, wood brittle, with tendency to overbear; Milam—poor grower; Northern Spy—no good; Pryor's Red—all dead; Rome Beauty—winter kills badly; Rhode Island Greening—good grower, but poor bearer; Rawles Janet—tree winter kills, cannot recommend it; Roman Stem—good grower and good fruit, but not a late keeper; White Pippin—fine tree, large apple and fine flavor; Willow Twig—not a success; White Winter Pearmain—sickly tree; a rabbit will go five miles to get a chance to peel one of them; Wine Sap—tree good grower, fruit small and not salable.

Now in conclusion: If the society expects me to recommend a list for planting, I would say for summer, Early Harvest, Red June, Benoni and Cooper's Early White. For fall—Foster, Maiden's Blush, Rambo and Bailey's Sweet. For winter—Ben. Davis, Jonathan, Grimes' Golden and Lansingburg Pippin.

HOLT COUNTY HORTICULTURAL SOCIETY.

AN INTERESTING SESSION OF THE HOLT COUNTY SOCIETY—ESSAY, ETC.

A highly interesting session of our fruit growers was held at the office of Dr. Goslin on Saturday last.

Papers on pruning were read by Wm. Brodbeck and W. R. Laughlin. A long and interesting discussion followed, in which nearly every person present took a part.

Mr. Blanchard brought into the room two old neglected grape vines and with saw and pruning shears gave an illustration of his plan of treating such vines. The discussion was earnest, but there was no point of essential difference between the members as to the pruning of either trees or vines. Both papers are to be furnished for publication in the papers of the county.

Dr. Goslin told of his success in the almost new method of propagating grape vines from single eyes, showing a bud cut into shape for planting, and telling how they are to be treated. Several members spoke highly of the Niagara grape.

Mr. Culp told the society that wire screening had perfectly protected his trees from rabbits.

The president read a letter from Mr. Goodman, secretary of the State Society, and after discussion it was voted to advise the State Society to pay to Miss Mary Murtfeldt, of Kirkwood, Mo., for her work during the present year as entomologist the sum of \$200. Also, that the pay of the Secretary of the State Society be properly increased.

There was a good deal of talk about spraying apple trees to prevent the Codling moth, and of getting a force pump for that purpose.

Voted to hold Society meetings in the court house hereafter.

Voted to hold our June meeting—strawberry festival—on Saturday, June 4, at 10 o'clock A. M.

The meeting voted to request J. N. Meniffee to prepare a paper on strawberries, to be read at that meeting. Also, Mrs. Goslin to prepare a paper on a subject of her own choosing.

The secretary was instructed to send written invitations to President Evans and Secretary Goodman, of the State Society, to Levi Chubbuck, Associate Editor of Colman's Rural World, to C. C. Bell, of

Boonville, to T. W. Gaunt, of Maryville, to Miss Murtfeldt, and to our sister society at Mound City, to be present at our fourth of June meeting.

Dr. Goslin was appointed to ask the Oregon cornet band to play for the fourth of June meeting.

The secretary was instructed to assure Mr. Goodman of the best possible assistance of Holt county in making a great show of Missouri fruits next fall at St. Louis and elsewhere.

N. F. MURRAY, President.

W. R. LAUGHLIN, Secretary.

PLANTING AND PRUNING.

BY MR. BRODBECK.

This is certainly a much more important feature to fruit growers than the most of us are aware of. I here give my idea of transplanting and pruning, and whatever I may say I will be sure of an opposite opinion of some one. I believe trees should not be taken up until spring as it is impossible for us to place the roots and fibers as nature has placed them to protect them through the winter. They lay dormant so long, from fall till spring, that to heal them in the ground, we can't straighten out all the little fibers as well as where they grow and they come out in the spring all crooked up, and more or less dried out or mildewed. In setting the tree all the little fibers should be well straightened out, no two to touch or cross each other. It is not necessary to dig a great deep hole and put in brick or rock like they do where they have hardpan; our land here has a natural under drainage. The ground should be well pulverized, using the top soil among the fibers. Don't set them too deep. I use water in setting and lean the trees a little to the southwest: curtail the top in proportion to the root; head four to five feet high; three limbs and the center is enough for

the head—never leave more than five with the center; balance them on one stem; keep the buds rubbed off eighteen inches or two feet from main stem. Let these head limbs grow up high enough to be out of your way, and if they incline to come down too low, clip them at a bud that turns up, if they run too straight up cut at a bud that turns out. You can by so doing regulate the top of the tree in pruning. Keep all unnecessary limbs off by rubbing off the buds or cut when very small. By so doing we avoid cutting large limbs from the trunk or main branches, which has been the cause of the death of a great many good trees in our old orchards. Let enough limbs remain on the inside of your trees so you can step from one limb to the other in old trees—this makes a ladder to get to the top of the tree. Where there is an opening let a watersprout grow, thereby making a young top on an old body, I believe the watersprouts should not always all be cut off. We go to work in a great hurry in pruning our orchards. Many of us commence cutting and cut all the limbs, even every twig, from four to six feet from main trunk, which makes it very difficult to get to our fruit. If you will notice you can see most of our low-headed trees eight to ten feet (often even more than that) to the first fruit limb from the root of the tree. A great many from five to eight of these branches, or trunks, as I call them, all eight to twelve feet to the first twig that can have any fruit. The center branches will have to be cut off or the top will be too thick. Now we have a little brush of fruit limbs high up and almost impossible to get at for the want of limbs to stand upon. This leaves nearly all the fruit ten to twenty-five feet from the main trunk of our trees. We have too much wood—entirely too much top to our trees. When they are full of fruit the ground we give them (16 to 25 feet) is not enough to support all this wood and also keep the fruit in a healthy condition. The fruit will become diseased for the want of nutriment or proper food.

And now the thinning begins. Nature won't trim our trees, but it will thin our fruit. If we don't do our part and keep our trees in proper shape the apple becomes diseased from starvation because we have too much top or tree—because we head too low. Head high and your trees won't have so much top and you can easily keep them in proper bounds. The codling moth and other insects soon know when an apple is not healthy—they go for it—they were created for that purpose. Why, let the sturdy oak of the forest become diseased, and it will become filled with these pests before we would know there was anything the matter with the tree. We don't find any of these insects in vigorous, healthy trees, and we don't find many in vigorous, healthy

growing apples, nor will they fall until we gather them. I have adopted a different plan of pruning. When a limb interferes or crosses another limb I don't always cut that off close to the trunk or main limb, I cut one or two or three feet from one or the other of the interfering limbs, owing to how it comes in contact with other limbs. Always leave some branches growing out of upright limbs, or at least a few buds even though they are no longer than four to six inches; but leave them as long as possible, so long as they do not come in contact with other limbs. It is said the leaves are the lungs of the trees. Now these buds you leave on these short limbs will be lungs for that part of the tree. By this we avoid having six or eight feet without a leaf or lungs, which, I believe, is very injurious to the tree and fruit. I believe we should prune our trees so as to throw the bearing wood as close to the body of the tree as possible, and we can gather the fruit easier and in less time, and not let the limbs grow out from the tree fifteen or twenty feet and then only a little bunch at the end for the fruit. I believe the ends of long limbs should be cut off and throw the fruit near the strength of the tree. Cut more outside and not so much inside, and let the sun and light in by thinning the outside. When these long limbs get full of apples they bend all out of shape, and often break. They say if you bend "osage orange," or hedge, without cutting it will die because the sap can't flow through. If it has such an effect on hedge, which clings to life more than any other timber we have, why, then, should it not have the same effect on a limb of apples that is bent equally as much as the hedge, with a great lot of fruit beyond this bend or pressure. More than that, the heavy winds twist this limb, already strained to its utmost, in many cases twisting the bark loose, and it takes this tree years to recruit again and it never will come altogether out of its crooked and twisted shape. Then would it not be better to cut the limbs back shorter and let the sun in from the outside. We all know the fruit on such a bent or strained limb is both small and tasteless. Some say nature will prune our fruit trees for us; others say they don't need pruning. This, I think, is a mistake. I don't think God intended us to have this good fruit in any such a lazy way. God created Adam and placed him in the Garden of Eden to dress it, the fruit thereof to be his meat. It seems this much he was commanded to do before the fall of Adam and Eve. By their transgression for eating the forbidden fruit it makes this dressing or pruning more laborious to us, as God says, "cursed is the ground, for thy sake, in sorrow shalt thou eat of it all the days of thy life; thorns also and thistles shall it bring forth to thee; thou shalt eat the herb of the

field, in the sweat of thy face thou shalt eat bread." We are also told to turn our spears into pruning hooks. There are other passages in the divine law that speaks of pruning. Therefore I think that it is right to prune and if we prune with taste and good judgment we need have no fears of the result.

WM. BRODBECK.

SMALL FRUITS.

BY N. F. MURRAY.

This term includes grapes, goose-berries, starwberries and currants. These delicacies can all be grown here with profit, and will succeed on any land that will produce a fair crop of corn. Every owner of a farm or good sized garden should seek to supply his own table with a variety of all these healthy fruits in their season. They will grow and produce such abundant crops, that it becomes a matter of economy to have a constant supply on hand, and no kind of diet is more conducive to good health than a free use of such fruits. And for market some of these fruits will pay five to ten fold more for the labor expended in their production than any farm crop, and are just as sure to give a crop as corn or wheat.

And yet how very few of our people are growing them for their own use, to say nothing of supplying the market. Your own citizens of Mound City are compelled to send their orders for these fruits to St. Joseph, and they are often filled with shipments from other States at high prices. And your supply of canned berries and jellies are most all from California and eastern States.

How long shall we remain with folded arms and closed eyes and allow the rich profits of this great industry to flow to distant States, to enrich the people and increase the prosperity of towns we have never seen, and to impoverish our own that we profess to be interested in. Gentlemen, this is a question like many others. It is for the few to answer. And if you wish to see a change for the better let a few here and there lead off and show our people what can be done, and enough will soon follow. Some five years ago I sold two thousand Snyder blackberry plants to F. McConn, of St. Joseph, who had them planted in a plum orchard on his farm, and he informs me that notwithstanding the fact that he gave them but little care, allowing them to grow as they could in grass and weeds, that they have netted him about eight hundred dollars. Many of his neighbors seeing them do so well, have bought and planted them by the thousands—and so the good work goes on and yet the demand for blackberries is on the increase. St. Joseph and Kansas City did not get half what they wanted last season, although offering from three to four dollars per case.

A Mr. Hopkins, of Kansas City, a few years ago netted one thousand dollars from one acre of strawberries. Now it requires but a small piece of land to go into this profitable business. Enough vegetables can be grown among the berry plants the first season to pay expenses; after that the fruit will pay, and pay well.

Don't fear overproduction, especially on blackberries and raspberries. If you can convert a thousand acres of the farm lands adjacent to Mound City into berry plantations it would increase the income from the same ten fold and give profitable employment to every man, woman and child in your city wanting work in the summer. At three thousand quarts per acre (a reasonable estimate), it would yield three million quarts, which at the low price of five cents per quart would bring one hundred and fifty thousand dollars. This, together with vegetables and a canning, factory would give an impetus to your boom, hardly yet dreamed of.

What the people need in this direction is information, and I can refer you to no better source than our State, county and local horticultural societies and the reports of the same. In these you find a record of the actual experience of the leading, wideawake fruit growers of the country.

No one should attempt to grow berries for market without first securing reliable information as to the best varieties to plant, and then buy first class plants true to the name from reliable men; then plant them carefully, give them good cultivation, and you will not be disap-

pointed. By all means continue the good work so well begun by organizing a horticultural society, attend it regularly and discuss fully all point of this important subject. Remember, that whatever pays for doing pays best when well done, and if you become weary, remember "That they who never tire never rest, and they who never hunger no feast enjoy."

PRUNING FRUIT TREES.

BY W. R. LAUGHLIN.

[Read before Holt County Horticultural Society, April 23, 1887.]

From first to last the main object of pruning should be to prevent the growth that is not wanted, rather than to cut it off after it has been made. To so prevent is a saving of labor and of the vitality of the trees.

The shaping of the trees for the first two or three years is the work of the nurseryman, but after that the owner must do the work himself, or trust to such skill and judgment as he can hire.

In the spring of 1882 I planted several hundred apple trees, three years old, that had not been trimmed at all in the nursery. For five years I have been doing my best to get them into proper shape, and on a good many of them it has been a failure. I would not take another lot of such trees as a gift. Buy no trees that have not been properly shaped in the nursery.

When you have purchased trees from the nursery, you will find that the tree digger or the spade has made a rough job, leaving bruised wood where the roots were cut off. Look over every tree and with a sharp knife make a clean cut of the end of every root, and take off say one-third of each limb, cutting back to strong buds that point in the right direction. Any man who is fit to grow trees for sale will know that varieties have naturally very different shapes and styles, and that

this fact must largely determine the treatment of many kinds. The Ramsdell Sweet grows almost as upright as a Lombardy Poplar.

The Bailey Sweet is an irregular growth of long switches. The Cooper's Early White is a stubby, ill-shaped mass of limbs, no two alike, but delighting in a variety of obtuse angles. To attempt to prune trees of these three varieties into the same shape would be a grave mistake.

Just after your trees are set determine what limbs are to be taken entirely off. Cut them an inch or two from the tree and let the stubs remain till the next year, for the reason that a tree grows but little the first year after setting, and if cut close to the tree the wounds would check and not heal over. The stub left will not check back to the body of the tree. Next year cut off these stubs at pruning time, and the clean cut is soon healed over, or so nearly so as to prevent injury.

Trees so treated will require but very little cutting during the rest of the years of their lives. Careful looking at a tree on all sides—perhaps stepping around it two or three times, will reveal to you each year what little cutting of limbs or rubbing off of buds is needed to give it the right shape and balance, to prevent its growing into wrong proportions and to keep the head properly open to the air and sunlight.

A good mechanical eye, some experience at pruning and common sense are necessary in the nursery and in the orchard.

TIME OF PRUNING.

My experience with young orchards began thirty-eight years ago, with nursery stock twenty-nine years ago, and with the old orchard I now have, in the spring of '81. I have experimented carefully and extensively in Illinois, Iowa, Kansas and now in Missouri. Except in the case of a very old and neglected orchard, scarcely in any event will I cut a fruit tree after it has been planted either in nursery or orchard at any other time than during the first half of June. The nursery trees or the orchard that has been rightly attended to, will seldom need to have a cut made that is half an inch across. The tree is then full of sap and of life. The mechanical pressure of the growth that is then going on holds the wood together and prevents checking, and by the time the second growth for the year is done forming almost all the wood that was exposed will be covered in with bark. A very great many many trees are spoiled by being pruned at other times. The surface of the wound checks—the rain wets the little checks to the bottom—a dry spell deepens the checks and next rain the water goes deeper.

This process goes on year after year, and at last reaches the ground. The wind blows the tree over, or it dies standing—the owner finds it rotten at the heart, and wonders what caused it to be so.

In the spring of 1881 I found myself in possession of a very badly dilapidated orchard of one hundred trees that had been planted in 1854. The trees had been seedlings originally, but in 1869, when owned by Linville Murray, he and his father had top grafted most of them. It passed into other hands and for ten years it was neglected and victimized by six different renters. The only instrument used had been the ax, and the slaughtering had been done by blows that struck downward on the fated trees, haggling and splitting the mutilated stubs that were left. Most of the trees were far past hope when I began with them.

In the latter part of March, according to my best judgment, I cut away at least one-third of all the wood—of course with a saw. I painted two or three time wherever a limb was taken off, some of them six inches in diameter. The abuse the orchard had received and the hard winters since leave me with few trees of much value to-day, and with not much of definite opinion based on the experiment.

During that time I had been observing a number of old orchards that have been pruned in different styles, most of them barbarously. So far as I have found any opinion during these six years, on the subject of reconstructing such old apple orchards, if I had another such job to do I would cut in two styles, suiting my practice to each individual tree. 1st. I would cut back to ten to twenty stubs—if the tree has sufficient vitality left it will send out a numerous growth of shoots that may be handled so as to produce for more or less years a good many apples of fine appearance and of high quality; or 2d, if the tree was too far gone for the first prescription, I would thin the top, make the most of such apples as it would bear, and await the hour when the wind or the ax should relieve me of its existence.

WHERE TO CUT OFF A LIMB.

On all varieties there is at the base of each limb an enlargement that ceases more or less abruptly, close to the body of the tree, or the larger limb from which the one you wish to cut off sprigs. Just at the outer end of that enlargement, and sloping upward and inward, is the place to apply the saw to larger limbs, or the knife to smaller ones. This cuts them short enough and leaves the least of exposed surface. Always cut from below up the slope.

Never hire a man to prune your trees unless you know he is very good at that business, or unless he comes to you with the most positive recommendations from men that you know to be experienced and successful orchardists. Better turn a bull loose in a china shop.

GREENE COUNTY HORTICULTURAL SOCIETY.

THE LAST MONTH OF WINTER.

[An essay read before the Greene County Horticultural Society, February 6, 1886.]

As horticulturists, workers, tillers of the soil, we have by this time in our experience learned that every division of time has its value, every season its opportunities and utility. Together with the natural division of four seasons in every year there are many subdivisions, quaintly denominated busy season, leisure season, idle season, etc. The last is a misnomer, and by every horticulturist should be stricken out. That spring, summer and autumn are all busy seasons is a fact, busy all, heads, hands, implements and animals, planting, tilling, harvesting and marketing. The very seeds we sow and the soil are busy, our plants, vines and trees, growing, blooming and fruiting are beautifully busy. Summer's tillage and autumn's harvest ended and the fruits of our efforts stored, harness, implements and animals go into winter quarters for a rest. The weary acres of hard worked soil need a rest also and now get it. It is good that Jack Frost should bid vegetation halt and that stern cold winter should command that we cease to toil and that our physical machinery take a rest. The price of winter may be estimated by the value of recuperation which this three months of comparative inactivity secures to our soil and to our muscular powers. Winter has still other utilities.

While I was a farmer boy at home with my father I plowed in

summer and went to school in winter, and so we must do yet, stir the soil in the summer and cultivate our mental gardens in winter. The season of comparative physical leisure is a real opportunity for mental action, mental culture. Winter is the workingman's best season for study. The mind is quicker in the crisp invigorating winter to catch new ideas and put them in solid shape, to pile up knowledge by reading, thinking and studying for summer's use.

Now is also the proper time to draft our plans for the incoming horticultural year. In this we may be assisted by a careful review of last year's operations, noting alike successes and failures with cause. We may; nay, we ought, after necessary thought and estimates in winter, to determine what we will plant, where, how much, when and how. And when satisfactorily planned should be put on paper for actual use. Now we ought to investigate the seed question. Of whom shall I procure my necessary supply of vegetable and flower seeds for the spring planting just planted? And when satisfied in our choice of seedman as most reliable for good, true, fresh seeds, it is well at once to make a list of seeds wanted ready for an order.

Questions in reference to cultivation may best be examined and settled now if any improvement in our departures from last year's methods are determined, the implements will claim next attention in our plans and all necessary changes put on our list of wants in the way of an outfit for approaching season of active operations.

There are sound reasons, more than we have mentioned, why winter should by every one of us be thus utilized. As there is a time for all things—this is the time for these things. The best and only time suited to such. If deferred now, it must be hurriedly done and poorly done when our time is in pressing demand for other duties, and we will then be all the season pushing one part of operations out of joint with effort to crowd in neglected work of other parts. But if these matters of winter preparation are attended to, we must then be able to feel a cheerful readiness for spring work with pleasant thoughts of improvement over last year's operations and successes. JOT.

A HINT TO ORCHARDISTS.

NEW APPLES.

[An essay upon apples, and the way to procure the best varieties, read by M. J. Rountree before the Greene county Horticultural Society, Feb. 6, 1886.]

There are many hundreds of varieties of apples offered by nurserymen which do not pay to plant, many of them are first rate in quality, some of them do not keep well, others keep, but are poor in quality, others are deficient in color. All our apple lists need revising; if they were cut down 75 per cent. we would still have too many varieties. The apple we want for profit we have not got. We may never get it. The ideal coming apple should possess all the following characteristics, viz.: The tree should be symmetrical and perfectly hardy; it should be well adapted to the various soils and conditions existing in the apple growing belt. The fruit should be medium or above in size; the color should be unexceptionable or such as to attract the attention of the most casual observer; the quality should be of the very best. It should be a uniform free bearer; it should keep well until May at least; it should be sufficiently firm to bear shipment. The Ben. Davis possesses several of the above mentioned characteristics, but is deficient in some of the main ones. It bears well and its size and color is quite satisfactory, but it is deficient in flavor and keeping quality. But so far, it is, all things considered, the best investment we can make as a winter market apple. It would be well for horticulturists to experiment in the growing of new seedlings. A few seeds could be sown each year from several different good varieties. Young seedlings should be thinned out and only the smoothest and thrifty ones retained. Buds of these young seedlings could be budded in August upon young thrifty bearing trees, and in from two to four years these buds would bear fruit. The best specimens of these could be kept and fully tested. In this way much might be accomplished without much loss of time, as many varieties could be budded on one tree, and in this way the ideal apple might be discovered. We certainly have not found it yet, or at least, it has not been generally disseminated. Such an apple would be

worth millions of dollars. There are quite a number of varieties which possess more or less of the good qualities of the ideal apple, and some of them will do very well as makeshifts or substitutes for it, but our best pomologists and fruit growers lament that we have not got a better apple to take the place of the Ben. Davis. A great deal of attention is being given at this time to the discovery and introduction of new promising seedings, and all fruit growing associations are giving much attention to the revision of fruit lists. It is to be hoped that the Missouri State society will diligently apply itself to this much needed departure and thereby educate planters upon this most important feature of the business. New beginners are at no loss about what to plant, but experience finally teaches them that it is a question or problem not yet solved.

WOMAN'S MISSION IN HORTICULTURE.

BY MRS. WADE BURDEN, SPRINGFIELD, MO.

Mr. President, Ladies and Gentlemen :

The subject assigned me by your executive committee is "Woman's Mission in Horticulture." Has woman a special mission in horticulture? The first woman who imagined she had come to grief, finding herself unexpectedly at a horticultural exhibition (the first on record) where the fruit was shown in its natural state, (on the trees) and the attendance not large but very select, she immediately constituted herself a committee on fruits and proceeded to sample the variety under consideration. The result was disastrous. Had it not been for that committee of one this earth might now be one vast Eden, and man (and woman too) be luxuriating on the fruits thereof instead of earning their bread by the sweat of their brow.

But would that state of affairs be likely to promote the best interests of horticulture? We opine not. If such were the case woman could not possibly have a mission, and then what would become of the

country? she could not even aspire to be vice-president of the county horticultural society, to say nothing of the State. Now the possibilities are in her favor.

But seriously, can woman do anything in horticulture that man cannot do equally well? They say it takes a scolding woman to sow pepper seed; that is, to make a success of it.

It certainly requires a great amount of patience to be successful with delicate seedlings to carefully transplant and shade them, keep them free from weeds and bring them to perfection. But there have been patient men, we hear of them occasionally, Job, for instance. It is true there are not many women's names on the roll of horticultural fame, but perhaps if justice were done we should find them there. Many of the beautiful homes of our lovely city with their well kept grounds, emerald lawns, set with fruit and shade trees and brightened and adorned with borders and beds of choicest flowers are the result of womans labor. There is such a home on East Walnut street, the residence of the widow Hill and her daughters, Misses Sophie and Katie, where woman's hands tilled the soil, set out the trees and shrubs and personally superintended all the work that they did not actually do with their own hands. There are many more that might be mentioned that you are doubtless aware of. In the rose gardens of France it is just possible that some of the choice varieties produced there and made famous throughout the world for which credit is given to Monsieur Le Propriataire, may have been the result of the experiments of Madame la Femme.

But there is a mission for woman in which she can give and receive the greatest pleasure and satisfaction. It is in distributing her fruit and flowers where they will be appreciated, giving of her abundance if she be successful in horticulture to those who are not so highly favored. Her reward will be the blessings of the sick and afflicted and in this way she will realize the truth of the saying: "It is better to give than receive." The Womans Flower Mission of St. Louis are availing themselves of this privilege and are bringing joy and gladness to many a sick bed, both in hospital and home.

LATE AND EARLY CULTIVATION OF THE STRAWBERRY.

The strawberry stands next to the apple in a money point of view, and is adapted to a much wider territory. Probably no fruit is so universally grown as the strawberry. I doubt if any fruit is susceptible of greater improvement, at all events none has been improved so much within the last quarter of the nineteenth century. And yet horticulturists have not obtained their ideal strawberry, new varieties are coming forward for trial all the time and on every hand.

The cultivation of the strawberry is a matter that has and does employ the best thought in the horticultural field and has done so for many years, and yet no one method is acknowledged and accepted by all. I am of the opinion that much of the various theories grow out of the variation of climate soil and the conditions surrounding the cultivator, and I have no doubt but my treatment of the strawberry out of irregular conditions is why I am asked for this paper.

Cultivators need not be alarmed or afraid that the strawberry is going to be destroyed if one does step out of the usual methods of cultivation of the plant, for it is one of the very hardiest and will stand almost untold abuse and live and bear some fruit; on the other hand, it will, to my certain knowledge, bear as much deep plowing and rough hoeing and harrowing as any plant cultivated, and grow and thrive under it as much and give fruit to correspond.

I have no pet theory to offer to this society. I have had some experience, however, that might be suggestive to some one. Strawberry beds often become so foul with weeds or grasses from manure or otherwise, or so thickly matted that the fruit is small and unsaleable, so that it become necessary to plow up the whole plat to clean the ground, or renew the too thickly matted bed by re-setting, thereby losing one crop.

The experience I allude to is this: In the spring of '84 I set a plat of ground to strawberries and cultivated well up to August, after which they run and pretty well covered the ground, the land not being manured. During the winter of '85 I mulched well with well rotted manure. In the spring I picked a good crop of nice berries, but by the time the berries were off, the ground was taken by red and white clover, blue grass and timothy. To let it stand the next crop would have been meadow, so I mowed it to keep grass from seeding, but did not begin cultivation until about the 15th of July. I ought to have done

it immediately after the fruit was off. I used a small turning plow, throwing the furrows together, forming ridges and leaving a space of ten inches four feet apart, then hoed the unplowed space; after a few weeks we harrowed the ridges down, then used the double-shovel plow with long, narrow tongue on plows running close to plants, and mellowing the ground thoroughly, and so continued to cultivate and destroy each new crop of seed until late in November. Of course the plants were feeble when we commenced working them, and the weather was dry for some time after the first working, but when it became seasonable they grew and became stocky, but did not make but few new plants, because of the lateness of the operation. So I had but few more plants for fruiting in the spring '86 than what stood on the 10-inch strip. I also plowed and hoed them this spring with good effects, and since fruiting this season have given them a thorough working; the ground is clean and mellow, the vines are running and taking hold in mellow ground. This I might have had if I had commenced soon enough last season. I had a full half crop of nice fruit, but rather dirty. All that I have to do now is to keep the runners cut back and form matted rows.

JOHN DAILY.

LAFAYETTE COUNTY HORTICULTURAL SOCIETY.

THE MANAGEMENT OF THE APPLE ORCHARD.

BY JAMES AULL.

PLANTING AND CULTIVATING.

In the setting out, cultivation and general management of the orchard it is impossible to adopt one system for all orchards, since orchards in different sections require different treatment.

The obstacles we have to contend with : First, the drouth ; second, the borer, and third, the codling moth.

I think the following is the best course :

If possible, plow the ground deep in the fall and dig the holes in the fall if the ground is not too wet. The holes should not be less than two feet in diameter, the lowest point being two feet from the level of the ground.

The action of the frost during the winter will tend to loosen the subsoil, and any water that settles in the hole will readily pass through the loose subsoil, and the following summer the tree is not apt to suffer from drouth. When the time to plant arrives, cut down the sides of the hole with the spade, which will fill the bottom with surface soil, and make a fine bed for the roots to reach the damp earth in summer. After planting sow a strip of oats along the tree row, and hoe around the trees a space as large as the hole dug ; keep this space free from weeds, and when the oats are headed out, and before they are ripe, mow them and throw them around the trees as a mulch, letting them almost touch the trees. About the first of September cut the weeds and grass and put around as before. The second and succeeding years continue the same treatment. Mulching should be more generally practiced in fruit-producing districts, for it is the least expensive and most effective method of protecting fruit trees against the bad results often following the frequent and sudden changes of temperature during the summer and fall months, when the surface of the ground is left exposed to the direct rays of the sun. Again, when the mulch is put on two or three inches in thickness, the soil is constantly so moist and loose, that even when no rain falls for a term of several weeks, the trees or fruit receive no check for want of moisture and food under such circumstances.

To prescribe one rule for all orchards is like one medicine for all diseases. It is absolutely necessary for each grower to search out the nature and needs of his trees, if he desires the best results to reward his labor. Not unfrequently do we see barnyard manure recommended for orchards to make them fruitful, and in many cases if put on in small quantities it is beneficial, but in large quantities, where the soil is rich, it is not only unnecessary, but is positively injurious, as it causes a large growth of wood, thus increasing the evil rather than diminishing it, for whatever tends to make trees produce an extra luxuriant growth, diminishes their tendency to bear fruit. Wood ashes is undoubtedly one of the best fertilizers if spread over the entire surface of the ground, and not applied as some do only a few feet from the tree.

The feeding roots are at the small ends of the roots, more than at the large ends near the tree, and are always near the surface, therefore whatever fertilizer is applied should be spread evenly over the surface, and left but a few inches under it, then the feeding roots will easily reach it.

An unproductive orchard may be made fruitful by making one clean cut through the bark once around each tree when in blossom or by wrapping the trunk with wire, letting it cut through the bark; this course will not injure the trees, but will check the growth so that the tree will perfect the fruit buds for the next year. The operation may need to be repeated, if the soil is rich and the trees thrifty, every two or three years until a fruitful habit is formed. By this process the growth of the trees will be reduced to the fruit standard, and all the roots will remain in a healthy condition to perfect any crop of fruit set.

PRUNING.

In pruning it is better to cut only small limbs, and if it is done regularly it will not be hard to keep the tree in good shape. Cut out the water sprouts and scrape the trunk with a three cornered scraper, using the point to get all the old bark out of the forks of the main branches. In some of the rapid growing varieties the wood grows over the old bark, and the tree does not make a perfect joint and when heavily loaded with fruit it is apt to split off and thus ruin the tree. The trees should be washed in the spring with a thin wash made of soft soap and lime, and if a piece of rusty iron is left in the wash for a few days it will be the better for the tree and also make the borer hunt another tree, as iron is distasteful to him.

The codling moth is one of the greatest enemies of the apple orchard. By hanging a basin filled with a little sweetened water in the trees about dusk, a great many of them may be captured; a little vinegar should be added, as it is the ripe apple or cider smell that attracts the moths to their liquid graves. The time for commencing this will depend on the season, somewhere from the first to the middle of May, and it should be continued until July, when the first brood of moths will have been captured. By hanging out a basin as a tester about the time the moths are expected, their arrival can be exactly determined. As everyone knows the codling moth is the mother of the apple worm. She flies abroad only at night, when she visits one branch after another, depositing a little egg in the blow end of the apple, and as soon as her stock is exhausted she dies. The eggs soon hatch and the worm eats

its way to the core of the apple and then the injured fruit falls to the ground, and if it is not picked up by hogs and sheep, the larvæ soon leaves it and burrows into the ground and there spins for itself a winter house, or else hatches out, producing a moth that will visit the fruit in August.

SELECTION OF VARIETIES.

In the selection of varieties the grower should decide on a few of the best standard sorts, as too many varieties make up such mixed lots that but few buyers like to handle them. In my opinion the following is a good list: Early Harvest, Red Astrachan, Summer Bellflower, Maidens Blush, Jonathan, Ben Davis, Winesap and Huntsman's Favorite.

GATHERING AND PACKING.

As a rule most farmers pick and haul their apples to buyers. This is all wrong. Every farmer should pack his own apples in barrels in the orchard, saving a great deal of time, and the apples are delivered in much better order than when hauled loose in the wagon. In general it may be said that winter apples should be picked when they are ripe. Ripeness is shown by the color of the apples and by the ease with which they part from the tree. Apples probably keep longer when picked before they are ripe, but such apples never possess the flavor and crispness of fully matured fruit.

If a person has a good cellar for keeping fruit, the apples may be taken to it as soon as they are picked. Cider apples should be left on the ground in piles, as they will lose some of their water and will make better cider. Great care should always be taken in handling the fruit in all cases, as upon that will depend the success of the apple orchard.

JAMES AULL.

GRAPE CULTURE.

[An essay read at the November meeting of the Lafayette County, Missouri, Horticulture Society by Chas. Teubner.]

The grape is one of the most delicious, healthful and productive of fruits. It has been grown to yield over 500 bushels per acre. Although it grows easily, yet the vine requires more attention and labor than most other fruit, in order to grow it to perfection, hence it is not so largely planted for family use as it deserves to be.

LOCATION.

The location should be elevated if possible and open, so as to receive plenty of sunshine and air. Eastern and southern exposures, or slopes, are to be preferred, and when on a level, the soil should be well drained.

SOIL.

The grapevine will thrive in any moderately rich, dry, porous soil, such containing a large per cent. of sand being especially favorable. Gravelly or stony soil, if underlaid with porous subsoil is also suitable. Heavy or wet soils should be avoided, as grapes cannot endure "wet feet."

PLANTING.

The soil should be thoroughly prepared by deep plowing and subsoiling, or spading. The holes should be dug with a slant, on which the roots are spread out, after being dipped in water, and then covered with top soil, pressing it down moderately. The depth of planting varies with the size of the vine, but one foot is considered enough and even the largest, as very large vines can be inclined accordingly, and the lower roots spread out horizontally, for the roots of the grape naturally lie near the surface—they require *warm* feet as well as dry ones. Strong one year vines are mostly used. The proper distance

apart for planting varies with soil and varieties. Slow growers, or vines on moderate soil require no more than 6x6 ft., but for strong growers, or on rich soil, 6x8 ft., will be necessary.

The vines should be cut back to three eyes, (or buds), and in planting, these are left above ground.

CULTIVATION.

During the first year the soil should be stirred frequently with cultivator and hoe, and the ground kept free of weeds. Cultivation during the succeeding years is the same, with the addition of loosening the uncultivated strip of soil in the rows every spring with a spading fork or pronged hoe. Cultivate shallow.

PRUNING.

This may be done at any time after the leaves have fallen, until the latter part of March, November being the best month for that purpose. The surplus wood should be carried out at once, and burned when dry enough. The canes should be freed from the trellis so they can drop to the ground, where they will be partly protected against severe cold.

The first year's growth is cut back to within one foot of the ground.

During the second year, two or three of the strongest and uppermost canes are allowed to grow; the others are rubbed off as fast as they appear. The reason for this is that it concentrates, directs, and confines the forces of the vine to a few channels, instead of being allowed to expend itself uselessly on half a dozen or more.

The canes should now be tied to stakes, or a trellis, as they advance in growth, and the tips pinched off when they attain a growth of five feet, in order to force the flow of sap into the laterals (or limbs). These laterals should *not* be cut or rubbed off, as some do, but left to grow at will, for it is on these that the most and best fruit is formed.

Of the second year's growth the strongest cane is selected and cut back to four or five feet, and the laterals on it are cut to two or three eyes each, i. e., those only which are strong enough, say lead pencil size. The other cane or canes are cut back to three eyes, and are then called "spurs." On these spurs, canes for the following year's crop are grown, for the canes that produced a crop one season are cut off the following year, new wood being grown for every crop."

During the third year three or four canes are allowed to grow from the spurs, and treated like the second year's growth. In pruning the

third year's growth, two canes are left for bearing, and the others cut back to spurs, while the old cane is cut off where it starts from the body of the vine.

The treatment in after years is much the same, though somewhat more laborious. On strong vines the number of canes may be increased gradually to three and four, and the length of each extended to six or seven feet. No fixed rules can be given, as the treatment of each vine must be in accordance with its vigor, and each season's growth will tell the tale, whether properly cared for or neglected, or overborne, so that even the tyro in grape growing can soon learn what treatment is necessary, and when the vine needs a rest or stimulation.

SUMMER PRUNING.

This consists in pinching or breaking off the tips of the young shoots on which fruit is forming, when they have grown to six or eight inches. Usually but two bunches are allowed to each shoot, and those which have no fruit are rubbed off entirely. By this process the size, quality and quantity of the fruit can be controlled and improved.

TYING UP THE VINES.

The canes or bearing wood should be tied up in March or April, before the vine starts to growing, and should be spread out on the trellis, in order to prevent the new growth from being crowded.


For ties, willows or very strong twine should be used, as it is important to secure the canes in such a manner that the weight of the fruit and new growth does not break the tie. During the growing season the young canes and shoots should be tied up as soon as they are long enough to do so, or else the wind may break them off while they are yet tender. For this purpose twine, strips of rags, or pawpaw bark will answer.

TRELLIS.

Wire makes the best and cheapest trellis. No. 12 is commonly used, but No. 11 or 10 would be better.

For convenience a trellis is usually made five feet high, but the higher the better—for the grapes at least. Strong posts, (4x5 inches, and 7 feet long) are put at the ends of the rows, and after every third vine, using smaller ones as supports between the other vines. The end posts should be well braced. The wires are put on with staples,

but so they can move freely in them, because the weight of the fruit and vines, together with heat, cause the wires to lengthen, thus relaxing the tension, hence they must be drawn taut every spring before tying up the canes. The easiest way to do this is to run the wire through the end posts, and wind it up on a flat piece of oak wood, about ten inches long, two inches wide and half inch thick, the middle of the sides being narrowed one and a quarter inch, starting at three inches from the ends, thus:

Three strands of wire will  answer, but four would do better.

The lowest wire is put one-half foot farther from the ground than the distance between the others.

VARIETIES.

For this section, and for general use, I would recommend Telegraph, black, very early; Concord, black; Martha, white, early; Norton's, black; Elvira, white, late.

CENTRAL MISSOURI HORTICULTURAL SOCIETY.

[The Central Missouri Horticultural Association holds a splendid exhibition of fruits, flowers and vegetables.]

The display of fruits, flowers and vegetables gotten up on short notice by the Central Missouri Horticultural Association merits the largest notice at our hands. This association was only organized last spring, but has already done good work. The display shown at the Thespian opera house last Friday and Saturday, under the auspices of the association, would have done credit to the best established county fair in the State. The opera house was neatly decorated and the exhibits were arranged with great care and good taste. Fruits of all kinds, flowers and vegetables filled the large hall completely, and the

very large number of visitors present spoke in highest terms of the exhibition. The quantity of the exhibits was equaled by their splendid quality. Some of the finest specimens of corn and wheat that have been raised in the west were shown, the products of Missouri soil. Apples, surpassing what was to be found at the New Orleans exhibition, were on hand in profusion. Potatoes, onions, okra, pears, grapes, oats, clover seed, beans, watermelons, canteloupes, pumpkins and all seasonable products of orchard, garden and farm, delighted the eye everywhere. The esthetic spectator was charmed by displays of cut and pot flowers, making the hall a bower of beauty. The list of entrees given below shows the interest taken in the meeting, and had more time been given there would not have been space to accommodate the exhibits. There is not one of those who labored for the success of the fair that does not deserve especial mention, as there could not have been a more faithful corps of workers. The association deserves to be most heartily congratulated. The fair continued two days, Friday and Saturday, and, admission being free, the hall was thronged both days. Saturday afternoon there was a crowded house to witness the exercises of the public meeting of the association, hear the prize awards and listen to addresses by the speakers advertised. The meeting was called to order by Mr. H. M. Myers, President of the association, at two o'clock, and the Secretary, Chas. C. Bell, announced the program. Dr. H. Clagett, of Pilot Grove, was introduced and read an able address on horticulture and kindred topics.

Mr. L. A. Goodman, Secretary of the State Horticultural Society, was introduced and delivered a very helpful and entertaining talk. Dr. Clagett added a few words on hay curing. He thought farmers should have absolute knowledge, not simply opinions, on these disputed subjects. President Myers here gave some history of an orchard he had planted three years ago. He felt younger now than then. Rev. G. Reiche spoke briefly, emphasizing the fact that a man should not live for himself alone. W. A. Smiley talked a few minutes on wheat. A rather unexpected feature was the presentation to Miss Minnie Manger, the efficient assistant secretary, by the board of officers, of a handsome gold souvenir. W. P. Tompkins made the presentation speech, and Miss Manger responded gracefully. The inability of Judge Rice and Professor Haynes to make addresses was announced, and Secretary Bell concluded the literary portion of the exercises by a practical talk on his favorite topic, apple raising. He said in reference to the display that California could not excel us in apples, that all we needed now was cheap transportation. Speaking of the fair, he said it was

gotten up at short notice, but that the association felt encouraged at their success. After the awarding of the following prizes the association adjourned :

PREMIUMS AWARDED.

Wheat—First premium to exhibit No. 20, F. Runkel; second premium, No. 31, John A. King; third premium, No. 93, J. S. Garret.

Corn—First premium to exhibit No. 5, Ford Bros.; second premium, No. 28, Wm. King; third premium, No. 14, C. F. Adams.

Oats—Best quality, to exhibit No. 42, A. Harriman.

Clover Seed—Best quality, to exhibit No. 17, C. F. Adams.

Apples—Best display of shipping apples to exhibit No. 75, C. C. Manger; second best, No. 50, R. T. Kingsbury. Largest apples, No. 76, W. D. Haus. Greatest variety, No. 53, F. J. Boller.

Pears—Best quality to exhibit No. 104, Hugh Roberts.

Fruits of all kinds—Best display to exhibit No. 61, L. Geiger, Sr.; second best, No. 61, L. Geiger.

Grapes—Best and most perfect bunches, to exhibit No. 89, H. Hamburg.

Wines—best quality of 1886, to exhibit No. 85, A. Stretz.

Cider—Best quality of 1886, to exhibit No. 86, A. Stretz.

Sorghum—Best quality, to exhibit No. 49, H. Edson. (Received special premium of Meistrel & Smith.)

Potatoes—Best quality and display, to exhibit No. 69, George Miller; second best, No. No. 4, E. A. Myers.

Cabbage—Best heads, to exhibit No. 62, Charles Stretz.

Sweet potatoes—Best display, to exhibit No. 19, R. Morton.

Garden vegetables—Best display and quality, first premium to exhibit No. 60, L. Geiger, Jr.; second premium, No. 62, Charles Stretz.

Melons—Best display of all kinds, to exhibit No. 29, J. B. Sibley; heaviest melon, No. 84, J. B. Sibley.

Pumpkins, squash, etc.—Best assortment, to exhibit No. 48, R. Morton. Largest pumpkin, No. 41, G. W. Drennan.

Flowers—Best display of pot flowers, to exhibit No. 73, Mrs. S. Wooldridge; second best, No. 58, Mrs. B. E. Secongost. Best display of cut flowers, No. 91, Mrs. S. Wooldridge; second best, No. 119, Miss E. W. Force. General display, No. 73, Mrs. S. Wooldridge. Greatest variety, No. 58, Mrs. B. E. Secongost. (Special premium by Boonville Topic.)

Butter—Best quality, to exhibit No. 112, H. C. Lionberger; second best, No. 110, Mrs. J. E. Elliott.

Honey—Best quality, to exhibit No. 72, Miss Grace Taliaferro.

Music—Best cornet band, Boonville band.

The following committees awarded the various premiums:

Committee on Grain—Dr. J. H. Wooldridge, W. C. Scott and Dr. Harriman.

Committee on Fruit—H. Bunce, Dr. H. Clagett and George Duncan.

Committee on Garden Vegetables—L. A. Goodman, David George and W. A. Smiley.

Committee on Flowers—Mrs. S. Rogers, Mrs. A. Machette, Mrs. J. Durr and Capt. A. C. Widdicombe.

Committee on Butter and Honey—Mrs. W. P. Tompkins, Mrs. S. Rogers, Mrs. A. Machette and Capt. A. C. Widdicombe.

Certificates awarded: Exhibit No. 79, D. Lovet, for best Ben. Davis; exhibit No. 34, J. A. King, for best Geniting; exhibit No. 30, C. C. Eldridge, for best Bellflower; exhibit No. 76, W. D. Haus, for best Northern Spy; exhibit No. 78, J. McFall, for best Tulpahocken; exhibit No. 56, J. C. Ingersoll, for best Jonathan; exhibit No. 25, A. Hosp, for best Winesap; exhibit No. 96, A. Scott, for best Baldwin; exhibit No. 65, George Miller, for best New Town Pippin; exhibit No. 50, T. R. Kingsbury, for best Willow Twig; exhibit No. 53, Fred. J. Boller, for best Maiden Blush.

MISCELLANEOUS PAPERS.

FLOWERS.

[Graduation essay of Miss Mamie Trotter, of Breckenridge, Mo., read at the commencement of Kidder Institute, June 15, 1887.]

The earth has been rightly called the flower garden of God, and I think it would be difficult to find a more appropriate name.

We are enabled to realize this to its utmost extent, more in the spring and summer than at any other time, when we may see our green earth almost entirely covered with a countless variety of little beauties which are of almost all sizes, colors and descriptions. We may for a time think it strange that they can arrive at the state of perfection they have, without being carefully watched and tended day by day by the hand of man. Yet if we will stop and think, they are cultivated and watched over by a Being who is the creator of the universe, and in whose hand man is merely an instrument used for the performance of such earthly tasks as tilling the soil, and arranging things while He giveth the increase. Then has not our earth been rightly named His flower garden?

We find flowers vastly different from ours in the different zones, in some growing more luxuriantly than in others, as in those having a certain average annual temperature certain vegetable growth will flourish and each zone has its characteristic form of vegetation. They are arranged with such care, too, as some of the very sweetest are found where they will be seen only by very rough, uncultured people, and thus in their purity we may imagine they are urging the creatures around them to reform, and are thus doing the world some good.

I have often thought what a dreary waste this earth of ours would be without flowers; we would have nothing to look forward to in the coming of spring, and life would almost be a burden to us with nothing to brighten our pathway. And as we are trudging along life's rugged journey we may almost sink in despair and wish for something to divert our thoughts from our troubles, and nothing will accomplish this half so well as a flower. When we but look at it we forget our troubles in our ardent admiration for the beautiful object so free from care, and then how much better we feel; our load seems lighter to bear and life grows stronger within us as their subtle perfume, like incense from heaven, floats around us. The earth receives upon her bosom, the falling blossom but leaves to us the undying fragrance of our crushed immortelles. It is the delicate and sacred work of the Christian poet so to concentrate and embody this ethereal sweetness that we of duller sense may in fellowship with him receive and enjoy it.

In our zone flowers come just often enough and stay with us just long enough to be better appreciated during their stay than where vegetation remains green and flowers bloom throughout the year. As we see their tender buds expand we watch them with childlike credulous affection and are lead to think of them as emblems of the bright and better land. We should, too, while they last, do all the good with them we possibly can.

One of the most touching methods in which flowers are disposed of is that in which the surviving heroes of the late civil war honor their sleeping comrades, by strewing their graves with flowers, thus typifying their glorious resurrection which must surely follow the ennobling labor they performed while fighting for their country. Surely there can be no more sacred use for flowers than strewing them upon the grave of those we love. They are the most fitting emblems of the fair body hidden below, which once bloomed on earth, then perished as the earthy.

I have often wondered if there was a relation existing between flowers and human beings, and have several times seen species which I imagined reminded me of certain persons I had met.

I will present a few of those I have particularly noticed and see if you do not see the same resemblance. First, there is the tall, majestic sunflower which follows the sun throughout its entire course during the day, and which at a distance appears so beautiful. We find "that distance lends enchantment to the view," for upon closer examination we find it to be composed of the very coarsest of material.

It reminds me very much of an old bachelor with such a broad,

goodnatured face. But if we examine his habits and customs closer we find that he, like the sunflower, is a sham.

Again, the touch-me-not reminds me more of a sour old maid than anything else, because so common. And then such a temper as she generally has! When she is in an ill humor you dare not even look at her longer than she thinks necessary without her temper falling all to pieces, just as the touch-me-not does if you happen to touch it.

Next let us notice a sweet rose. It makes me think of a modest, retiring country maiden who is "born to blush unseen, and waste her sweetness on the desert air," but who, when found, is by far sweeter than those moving wore in society circles.

Then we have the little velvet pansies which almost seem too delicate to be associated with the less refined flowers which surround them. They remind me of a band of little children who, before they even know the meaning of sin, seem too pure to associate with the wickedness of this world lest their innocence be changed to something of a coarser nature.

Next is the meek and lowly daisy which we find in the fields, wild and uncultured, as well as in the beautiful flower gardens which adorn our city homes. We may liken them to people who are always contented and who, in whatever position of life they may be placed, scatter sunbeams all around them.

Then we have the snow-white lily of the valley. How very pure it is. I can think of nothing that is sweet enough to compare it with but the "sweet girl graduate," and I think you will fully agree with me in this. Again we have the green tea rose. After noting its color alone we know quite well what it compares best with. It is the "sour boy graduate."

The poet has, we find, compared flowers to stars shining in the earth's firmament. But we find the poet Longfellow has truly said:

"Everywhere about us they are g'owing
Some like stars to tell us spring is born,
Others their blue eyes with tears o'erflowing
Stand like Ruth, amid the golden corn.

In all places then and in all seasons,
Flowers expand their light and soul like wing,
Teaching us by most persuasive reasons
How akin they are to human things."

FARM FOR YOUNG MEN.

JAMES PARTON CONSIDERS AGRICULTURE A PROFESSION.

I do not know one educated young man of American birth who thinks of farming as a profession. I have sat for ten minutes over this paper trying to recall an individual who had even spoken favorably of agriculture as a vocation to live by. Farming appears to have completely passed out of the thoughts of young men in the eastern States as a desirable career. Is not this somewhat strange in a nation, the founders and first rulers of which were farmers, almost to a man? According to a recent statement a considerable number of students in our college are willing to go into foreign countries as missionaries, and all the professions appear to have some attraction for the young and ambitious, excepting, alone, this first and chief of all, the cultivation of the soil.

Not long ago, standing upon the eminence which is the site of a famous New York university, one of the professors said: "We succeeded with everything here, except in the department of agriculture. We can not make our students take an interest in farming. The machine shop, as you see, flourishes; it is a scene of absorbing interest every day. All our other shops and laboratories attract attention more or less, and every kind of study pursued here has its votaries. But when it comes to tilling the magnificent farm which Congress has given us, it is all up-hill work. The American youth of this age will not hoe corn if he can help it. A good many of our students have been brought up on farms. They have hoed corn and driven cows from their 7th year. They have done all that kind of work they ever mean to do unless compelled by inexorable necessity."

Who can blame them? Let any reasonable being visit one of our old-fashioned, one-horse farms in any of the older States, and he will not be disposed to scold those sons of farmers. One day last summer I sought shelter from a shower in the barn of one such on the coast of New England, a farm that dates back 200 years, upon which seven generations of laborious and thoughtful people have expended their strength. The interior of that huge old barn was a spectacle of dilapidation. Three good-sized country churches could have stood side by

side in it, and there were 1,000,000 holes by which the members could spy into the celestial vault. There were but a few places in the structure which afforded the shelter from the rain which we had sought, and the farmer kindly threw a blanket over the seat of our carriage to keep it dry. He did not need nor occupy a fourth part of the space for his half a dozen calves and cows, his small and dirty chaise, his mare and colt and his numerous broods of chickens.

This withered old barn, a relic of other days, other men, other modes, was a visible commentary upon the remarks of the professor. There was nothing vigorous or hopeful about the place, except a young bull calf with which the proprietor had a severe tussle in getting him away from his mother. The very spirit of desolation brooded over the scene; for the last two generations of farmers had been utterly defeated and laid prostrate by western competition.

"I tried winter squash," said one of them, "and raised thirty tons. Just as I was getting ready to haul them to market, along came a train full of squashes from Ohio, and knocked down the price to a point that would not pay for hauling."

And now we hear the western farmers ask, how can we raise grain against the competition of Bombay, with its fertile, boundless plains and teeming millions of laborers which the Suez canal and the freight steamers have put within twenty-two days of London? I read myself the other day in the London Times a paragraph which mentioned the arrival of a steamer from Bombay containing 5,000 tons of wheat and 600 bales of cotton, which had left Bombay twenty-two days before. This prodigious cargo was discharged from the vessel in twenty three hours.

These are weighty facts. They announce changes in human conditions of the most radical nature and widespread extent. The opening of these boundless grain regions of northern India is to the farmers of the west what the train load of squashes was to the Yankee. It notifies them that the day is very near when the business of the whole world will form one system, and everything will have to be produced when nature herself has given the hint; and when, too, all the ligatures of protection will have to be unloosed and business take its natural course everywhere. It announces that our race is going to raise and distribute its daily bread on business-like and economical principles. The old-fashioned farm is already an obsolete thing, rapidly becoming impossible. Agriculture is about to become a liberal profession, directed by intelligence, sustained by capital, and its product distributed with the minimum of waste. Instead of repelling young men, as it now

naturally does, it will attract those who have ambition, force, patience and intellect. That kind of farmer will wage war with unchangeable facts, but work in harmony with them. He will get nature on his side by way of preliminary.

Summer travelers over this broad land, as they speed from county to county and from State to State, can scarcely avoid observing that each region has its special products, favored by climate, favored by circumstances and strong enough to hold their own against marauders. We come to regions where the most delicate kinds of pear is a sure fruit, and the car boys keep the trains abundantly supplied with them in the season. Stick a pear tree down almost anywhere in Essex county, Massachusetts, and it is pretty certain to do well. It may be too close to a stone wall; it may be crowded by an overhanging barn; other trees around it may be devoured by insects; but the pear tree holds its own and comes up smiling with a beautiful crop of pears every September. Here is a hint given by nature's own side, to anyone with the requisite force, knowledge and patience.

Move along westward to the borders of Seneca lake, and you will come to counties where the plum is nature's favorite, and the pear is seldom seen. Along in Ohio there are peach counties; and soon we reach the wondrous prairie world, which is so curiously adapted to the production of Indian corn that no other region of the earth can compete with it. It is so all over the land. There is probably not a country in the United States, nor one acre in any country, which does not lend itself more willingly to the production of some one thing than any other county or acre. Every successful farmer among us owes his success in great part to his working in harmony with these suggestions of nature, our common mother.

It is special farming that now invites men of the requisite ability; and it invites them to success, not sudden, but brilliant and sustained. That dilapidated old barn spoken of above bore testimony to the advantage which farmers derive from acting on a hint given by nature. The original owner of the barn possessed a tract of salt meadow bordering upon the sea, which yielded him 150 tons of good salt hay at the only cost of cutting and getting it in. This hay imparts to the milk of cows a disagreeable flavor, and is, therefore, of but limited use to the farmer, and brings a low price in the market. The builder of the barn bought cheap cattle in a neighboring State in the fall, and then with his lofts filled with salt hay and his stalls with lean bullocks, he amused himself and his boys during the long, New England winter by converting his hay into beef. When the spring returned he had some

good fat cattle for the butcher, and a manure-heap of such proportions as would have given him a great opportunity of successful culture if he had had the right land upon which to use it.

Many similar examples will occur to country readers. Whenever in the United States we see a truly prosperous and enviable farmer, we find that he owes his prosperity to some special production which his locality specially favors. He need not, as our southern planters formerly did, to their great injury, neglect to produce his own supplies, but he concentrates his best faculties and bases his career upon a specialty. Consider, for example, the splendid results which have been attained by the nurserymen and seed-growers of New York, Pennsylvania, Connecticut and New Jersey. One of the wonders of the State of New York, which so abounds in wonderful objects, is the great nursery farm of Elwanger & Barry, near Rochester, who count their acres by the thousand, their workpeople by the hundred and their annual product by the hundred thousand. Anyone who visits that part of the State without viewing this superb establishment misses one of the most beautiful and interesting exhibitions of victorious industry which the new world affords. Its two founders began operations there forty or fifty years ago, one a German, the other an Irishman, whose only capital was knowledge, intelligence and resolution. They have not only succeeded themselves, but their example has filled all that region with thriving nurserymen and seed-growers. If any one doubts that agriculture in the United States is a fit profession for the most ambitious and advanced intelligence, his doubts will be dispelled by a few days' careful inspection of the nurseries about Rochester and Geneva.

New York people all know something about Oyster bay asparagus, which for many years commanded double the price of the ordinary kind, and was worthy it. Asparagus, unless we happen to be eating it at the moment we should naturally think of as a minor product of the soil, is a trivial thing, the season of which scarcely lasts a month. Nevertheless, Oyster bay asparagus has afforded for many years a solid basis of prosperity to a considerable community of Long Island farmers. Some families have grown rich by raising it; many do well selling and transporting it; and now by the process of canning the business is rendered still more stable and lucrative. Delicate as this vegetable is, it yields itself readily to the preserving process, and commands a high price in many distant markets.

Let us bear in mind, also, that those Long Islanders who developed the business of asparagus half a century ago had no such market as their successors now enjoy. Ladies who went to market fifty

years ago intended to make their market money go as far as it could. They were careful, conscientious mothers of families, of limited income. We have now a large class of consumers in the great cities to whom the price of commodities is no consideration at all. They go to market with only one idea—to buy the best thing, no matter what the price. In the city of New York 300 or 400 men go to market every morning, representing hotels, clubs, lines of steamers, restaurants, families, who are all in quest of whatever is best of its kind. They must have the best, and many of them must have it in great quantities. I have been in a Broadway hotel which consumed daily 600 spring chickens.

A hotel need not be very large to order its asparagus by the hundred bundles. It is in producing the high qualities of produce that trained intelligence finds its opportunity. Common men produce common things. Men of force and ambition, men of forethought, patience and knowledge, cannot be satisfied unless they are at the top of the market. The field for such men is practically boundless. The market cannot be overstocked with the best.

The farmer of to-day has another advantage over the farmer of yesterday. Products of every kind, even the most delicate and perishable, are now preserved, condensed, transformed and in various ways rendered stable and merchantable commodities. Only a few years ago I met the late genial Major Ben Perley Poore, who mentioned, as a great joke, that he had just sold a load of excellent Baldwin apples for 85 cents a barrel. "And the barrels," said the Major, "cost me 35 cents."

Such a thing need never happen at the present time, because at a time of glut apples, like every other kind of fruit, can be subjected to a change of form, or can be kept in their natural condition for six months and sold for \$4 a barrel. I know not who it was that invented canning and its kindred devices, but whoever he was he made an invention of immeasurable importance. He not only created new industries, but he gave new permanence and solidity to many others.

Those perishable plums of Seneca lake and California would be of small importance to the plum-raiser if he could do nothing with them but sell them as soon as they were ripe. The canneries now absorb the surplus, and by so doing impart to the business a character and a dignity which may well allure into it intelligent ambition. Most of us can remember the time when those mighty peach-growers on the Delaware below Philadelphia were frequently defeated by their own suc-

cess. They poured into Philadelphia and Baltimore an overwhelming torrent of peaches, which the people of the cities devoured in vain, and the price fell until peaches were destitute of commercial value, and were thrown into the river by the boat load.

At present these transient trifles of the market share the rank and dignity of grain and cotton. They are dealt with in masses. They are quoted in the price-currents of foreign commerce. They have become important objects of commerce. Even the strawberry, to which nature assigned such a brevity of existence, can be preserved with even an increase of its delicious flavor. The strawberry, indeed, is now the incomparable preserve.

Poor Richard notified the people of the last century that "he who by the plow would thrive, himself must either hold or drive." That was true for the people of the last century, but the opposite of it is becoming the truth for the competent farmer of to-day. We now find that the directing hand ought not be also the toiling hand.

The successful farmers of the future will as little think of holding the plow as a Corliss or a Hoe thinks of wielding the sledge hammer. Everything great and commanding is done through a subdivision of labor. The head man of anything extensive and complicated is of necessity exempt from manual toil; but, in return for this exemption, he secures to those who labor under his direction a happier lot than manual toil alone has ever enjoyed.

This, of course, implies the possession of capital. "How am I to get the capital?" a young man may naturally ask. I can tell him how one young man got it, to say nothing of the well known instances, some of which I have mentioned. This young man of whom I now speak, fresh from England, found himself in Illinois thirty years ago, with little property beyond a trunkful of good clothes. The farmers about him were "land poor," as the saying was, and he offered his services to one of them as a farm hand. The farmer replied, after some parleying: "Work for me two years and I will give you a deed for eighty acres." It was a bargain. At the end of the two years, through utilizing all his chances, he came into possession of his land, with ten acres of the prairie broken, with three calves and a log cabin. That was his beginning. Within five years he was farming, cattle-raising and "operating" on a considerable scale. In a word, he was growing up with the country, and asked favors of no man.

If any young fellow should ask me, Shall I be a farmer? I should have to reply by asking another question: Are you man enough?

JAMES PARTON.

ON TREES.

BY G. C. BROADHEAD.

[Delivered before teachers and pupils of Pleasant Hill public school April, 15, 1886.]

There is a beauty in the pathless woods. There is magnificent grandeur mid a forest of big trees. There is grandeur and awful loneliness mid the deep shade of a tropical forest. To me the sighing of the winds through a pine grove is attractive and soothing in its subdued music.

Certain trees have a sacred significance attached to them. In ancient times the olive was held in great reverence among the Grecians. Its branches formed wreaths for the victims at the Olympic games and its oil was used in pouring out libations to divinity. The poets from time immemorial have sung praises in the name of certain trees. Virgil attunes his lyre under a spreading beach and sings

“Tytire tu recubans sub tegmine fagi.”

In our times Southey, Hemans, Longfellow and Burns have in like manner sung. Some of the prettiest poetry attuned to the sweetest melody has been sung. Among such I might name “The brave old oak,” “The Rowan tree.” Macbeth had cause to be frightened to death at the approach of Birnam’s wood.

During the American revolution trees were planted as symbols of growing freedom.

In France, in 1790, the Jacobins planted the first trees of liberty, and they were found throughout every village in France crowned with a liberty cap, and the people danced around them singing revolutionary songs, and during the Reign of Terror thousands lost their lives simply for having injured a tree of liberty.

In the revolution of July, 1830, (in France) trees of liberty were again planted in Paris. In the revolution of 1848 liberty trees were once more planted in places where the people held republican principles, and in Paris they were consecrated by the priests.

During the election contests, we, of the United States, put up poles and named them after our favorite candidates. Some trees are of historic importance. Treaties have been framed beneath their spread-

ing branches, and for that they are long remembered. For many years the tree remained in the suburbs of Philadelphia under which Wm. Penn effected a treaty with the Indians in 1682, by which they relinquished their right in Pennsylvania. In 1827, a stone monument was erected where this tree had stood.

In 1687, Sir Edmond Andros, Governor of New England and New York, came to Hartford by order of King James 2d of England, to demand the Colonial Charter. He did not succeed; it was hidden in a hollow oak and was thus preserved. That tree was ever after known as the Charter Oak. In 1856, it was blown down during a storm.

Certain forests are also historic, as Ettrick Forest, Windsor Forest, New Forest, Forest of Dean—all in Great Britain.

New Forest contains over 92,000 acres, and it is of historic importance, for there William Rufus, son of William the Conqueror, was shot with an arrow and killed. The other English forests above named also include extensive areas. But they are not altogether dense forests. They have roads, villages and manufactories within their limits, and the Forest of Dean includes one of the most valuable coal fields of Great Britain, with a population of over 8,000 coal miners. In Windsor Forest there are several historical trees, as "Elizabeth's Oak," "Shakespeare's Oak" and "Hearne's Oak."

The first trees planted for timber in England were planted during Elizabeth's reign in Windsor Forest. There are also trees in that forest said to be more than 1,000 years old.

The Black Forest (schwartzwold) of Germany is a wooded mountain chain rising 4,750 feet, but it is also not all forest, but is well inhabited by industrious manufacturers of wooden ware, such as clocks, music boxes, etc.

The uses and virtues of trees are innumerable. In every clime there are found trees possessing valuable medicinal properties, or else they may bear delicious fruits or nuts.

The Italian chestnut is an absolute necessity to the peasant, who not only eat the nuts without any previous preparation, but also grinds them and bakes bread of the pounded meal.

The Bread Fruit tree of the Pacific Islands affords a useful substitute for bread, and the healthful fruits of tropical countries are innumerable. The Cow tree of South America affords a pleasant and delicious milk which also coagulates into a cheese.

The Date Palm of North Africa and Western Asia forms the chief subsistence of the Arabs, and along the verge of the deserts and on small oases it is the only vegetable, where it not only assists in appeas-

ing hunger, but furnishes a grateful shade to the traveler. Seeing a cluster of trees afar off upon the desert, he is sure to find there a pool of water. Every part of the tree is used for some purpose. So much are the Arabs attached to the tree that it is related that an Arab woman was once taken to England. After remaining there four years, upon her return many questions were asked her concerning the country, the people, etc. To all she gave favorable answers, but she concluded by saying, "England wants one thing," "What is that?" they asked. "There is not a single date tree in the whole country. I looked for nothing else when there, but looked in vain." The minds of her listeners were at once filled with pity and they wondered how people could live in a country where there were no date trees.

This is analagous to the story of the North Carolinian, who moving to Missouri became discontented and moved back next year. Being asked the reason, he answered, "I cannot get pine knots to make a light with."

The Bamboo of the east is probably used for more purposes than any other tree. From it houses are made, bridges built, baskets, cups, ropes, sails, cloths, troughs, pumps, fences, paper and many other things are made, and the young shoots are eaten.

There is a tree in the island of Java called the Upas tree. For a long time, it was believed that the atmosphere in its immediate vicinity was so deadly in its effects, that neither plant nor animal could survive after breathing it. But it is now known that other trees do grow near it, and that man can also safely approach it; but a poison is extracted from its sap.

Some trees grow very curiously, others attain a great size. A species of palm grows in the island of Teneriffe which is called the Dragon tree. Humboldt considered one of these to be the oldest known tree, and there are existing documents proving it to have been as large in the 15th century as at present. It was 60 feet high with finger like jointed branches at top, was 48 feet in circumference at the root and 10 feet in diameter at the height of 12 feet. A Baobab tree in Senegal is supposed to be 5,150 years old. One, a Cypress at Chapultepec, Mexico, is 117 feet in circumference. The celebrated Chestnut tree of Mt. Aetna apparently consists of five large and two small trees, growing closely together and are considered as one tree; but the stems are said to be united beneath the ground into one big trunk. The largest trunk is 38 feet in circumference, and the entire distance around the cluster is 165 feet.

A public road wide enough for two coaches to drive abreast ex-

tends through it. A house has also been built in the center. The tree is probably over 1,000 years old.

The *Eucalyptus* or "Blue Gum" of Australia grows to a greater height than any other known tree, many of them reaching over 400 feet, and one species has been measured 486 feet high; one tree has been reported 159 feet in circumference at three feet from the ground. Another 80 feet circuit at 56 feet height.

The *Eucalyptus* is one of the most rapid growers; its timber very valuable, the tree beautiful in form and grandeur. It possesses great power of absorbing moisture and its emanations tend to purify the atmosphere. Hence it possesses great medicinal value. It has been naturalized and successfully planted in Algeria and southern California; but will not stand the climate of the southern United States.

It has also been introduced into India, Cape of Good Hope, Argentine Republic, Chili, Central America and some of the West India Islands. There are 140 species of it which differ from each other in growth and other characteristics. The largest and tallest trees of America are the Sequoia or Redwood (2 species). The Redwood belt (*Sequoia sempervirens*) is about 15 miles wide by 150 miles in length from the northern boundary of California to Monterey.

A single tree has been worked up into 65,000 feet valued at \$1,000. The *Sequoia sempervirens* is said to possess great power in condensing fogs and mists into rain and there are always cool, well supplied springs in their vicinity. Dr. Bolander asserted that in his opinion, if the redwood forests were destroyed California would truly become a desert. No other trees ever attracted so much attention in so short a period. Whitney speaks of seeing redwood forests of large trees, extending as far as the eye could reach; of trees eight to twelve feet in diameter 200 to 300 feet high, thickly grouped, with very strong trunks and branchless for 100 to 150 feet, above forming a dense canopy excluding the sky. These trees are found between 5,000 and 7,000 feet above the sea.

There are eight groves of "big trees." In the Calaveras grove there are thirty trees with circumferences ranging from 31 to 61 feet, and of heights from 231 to 325 feet. The tallest tree is about 390 feet high. One of these trees was cut down, having a diameter of 27 feet, including 18 inches of bark, and it occupied the time of five men for 22 days to cut it down, and after being cut off it stood so erect that three days were occupied in persuading it to fall. Counting its rings of growth, it was estimated to be over 1,300 years old.

In the Mariposa grove there are 17 trees over 60 feet in circum-

ference at the ground, but they are not so tall as the trees of Calaveras. One of them is 92 feet in circumference at the ground.

It has generally been supposed that the annular rings of trees also indicate the annual growth. With some trees in some climates and chiefly in ours, this is true, but not so with all, especially in the tropics.

All trees cannot be transplanted with success; some by reason of the long tap root, especially the oak and hickory. Some trees require certain kinds of soil. Their successful growth is dependent on the underlying geological formation, and will not thrive unless the soil is suitable. In southeast Missouri the pine is nearly always found growing upon a sandy or silicious soil, the cedar upon limestone glades.

Now with regard to our own peculiar trees. In the United States there are a little over 400 native species of trees which grow over 16 feet high: of these the Oak and Pine prevail. There are 60 Coniferous trees, 30 of the Rose family, 20 leguminous, 13 Walnuts and Hickories, and a lesser number of other species.

In Missouri the natural line between the prairie and forest region is a line drawn from Jasper county, northeastwardly through Cedar, St. Clair, Cooper, Chariton and northwardly. There are prairies on the east of this line and some extensive timbered tracts on the west, but as we proceed westward the large trees become few and the species less. In Missouri there are 70 species (exclusive of vines) over 16 feet in height, the greater number in southeast Missouri. They include Pawpaw, Linden, Buckeye, Black Ash, Blue Ash, Sugar Maple, White Maple, Red Maple, Box Elder, Hackberry, Elm (red), the White and Wahoo Elm, Sycamore, Black Locust, Tulip tree or Yellow Poplar, Cottonwood, Honey Locust, Coffee tree, Water Locust, Red Bud, Plum, 2 species, Dogwood, Persimmon, Bumelia, Catalpa, Willow several species, Pine, Cedar, Cypress, Sassafras, Black Gum, Tupelo Gum, Wild Cherry, Crab Apple, 4 or 5 Hawthorns, Service tree, Sweet Gum, Black Walnut, White Walnut, Pecan, Shellbark Hickory two species, other Hickories 3 species, 13 species of Oak, Beech, Hornbeam, Iron Wood Tupelo. Many of these afford useful timber and grow to magnificent proportions in their native *habitat*, but cannot be successfully transplanted. Of the list 23 are not found in Cass county, 11 bear good fruits, 5 bear nuts and about 12 of them will admit of transplanting. Trees should be set out so as not to be any deeper in the ground than they originally grew.

An important fact regarding forests is when a country is shorn of its trees, the climate will become more arid. A moist climate with running brooks along whose banks and valleys are thick groves, may

be entirely changed by cutting away the trees, and streams may even entirely dry up. In southern France, where the Olive trees at one time formed forests, in 1822, a severe frost killed them. After that a number of springs failed entirely, and in the city of Orleans nearly all the wells dried up. During the Roman rule in France, the river Durance, south of Avignon and the Seine, were navigable and well supplied with water. Now since the head waters of these streams have been cleared, the Durance can hardly float a skiff in summer. Similar facts are also related of Germaey. In Germany this matter has been closely investigated, and it is proven that "destroy the timber upon the mountains and there will be a decrease of water lower down." Or, as a distinguished naturalist says, "man strides over the earth and a desert follows him." The facts have awakened our government and timber claims are now made on public lands. Several States encourage the planting of trees by statute, and in Kansas we already see favorable increase of rainfall. Cut down no trees unless absolutely necessary, and plant trees and posterity will thank us.

REPORT FROM IOWA STATE HORTICULTURAL SOCIETY.

BY CHAS. PATTERSON, KIRKSVILLE.

The main object of my attendance at the meeting of this society at Charles City, Jan. 18-21st, was to ascertain the actual condition of their orchards. I had read their previous reports of general destruction by recent test winters, but as they seemed to include even the southern part, of which I had some personal knowledge, I suspected that the whole State might still grow sufficient fruit for home consumption, at least in favorable seasons. This suspicion seemed again fully confirmed on hearing their first report from the extreme southeastern district. The reporter himself had grubbed up a considerable orchard 16 years old, at Bonapart, only a few miles from our state line, where I have sold trees last season, and heard of no such complaints on our side.

My impression is now that his orchard, like nine-tenths on this side of the State line, suffered ten times as much from grass-sod and other abuses and neglect as from the test winters. It is, however, rather fortunate that when such heroic measures shall be resorted to here, some other cause than arctic winters will be trumped up, for it is hardly to be expected that the true one will be admitted. In a long strip on the southern border of Iowa, following very nearly the state line, apples were almost a total failure the past year, caused mostly by a storm in the summer, which may never occur again, and if it should, would be as likely to strike this side of the line next time. But it will nevertheless help strengthen the conviction that Missouri is peculiarly favorable for growing apples, which we should be ready to admit and profit by.

But when it comes to the northern part of Iowa, and all Minnesota, all accounts agree in positive assurance that all varieties are actually dead, except Oldenburg, Tatofski, Whitney and some other crabs, and I could not see a single instance from the car window to refute the assertion. One man, not a member, whom I conversed with at the hotel, had lost five or six thousand trees of bearing age, totally abandoned and grubbed them up, and gone into other business, a share in a cranberry swamp in Minnesota for one thing. Considering this, and that a full quota of delegates were from that part of the state, they are the most hopeful, determined, confident and cheerful people imaginable. They cannot tolerate any doubt of finding or producing a full assortment of iron clads, fully equal to any we now have. I ventured to ask a friend privately if he considered it prudent for me to plant 80 acres in orchard, with a view to marketing the produce in that region, until they could produce their own supply, and after some hesitation he admitted it might be. For my own part, I feel no hesitancy, except as to facilities. And I could not but imbibe some of their hopefulness. They have several hundreds of varieties from Russia and elsewhere on trial, most of which may either prove only summer and fall varieties, or much inferior to our standard, but I firmly believe some will prove both hardy and desirable.

There is one thing, however, that we must take into serious consideration. Our fruit is not esteemed to compare well with Michigan apples, which are about their only supply. This may be caused by inconsiderately poor sorting, which we are probably all guilty of, never having been educated to a proper merchantable standard. For another thing, our apples have been uncommonly full of codling moths for several years, which might not occur always, or we must learn to fight them. But the most generally discouraging cause, in my view, is the

inevitable sod in the orchard, making the largest part of the crop too small for market for several years before it disappears entirely. We must expect to sort better than we have done, and accept lower prices than Michigan, especially considering that ours will be mostly Ben Davis, against sorts admitted to be better. Our freights would be lighter, if our railroads carry at the same rate, which I doubt. I aim to run my cider press by steam to work up the culls, and try to find sale for cider and vinegar, but the market is filled with cheap whiskey and acid imitations, and the competition is not inviting.

Grapes appear to be fully as successful generally in Iowa as with us; but they are generally at least laid down, if not further protected, when they can grow even the tender sorts. Rot was hardly mentioned, which may be accounted for by frequent dips of the thermometer below 60 degrees at the critical time. Planting twenty inches deep, not only the tips of the long roots but the crown was strenuously advocated by some of the most intelligent men. I have learned to not dispute about methods on so different soils, but I could not help thinking "The art that mends nature" has made considerable progress, if we can instruct our grapes where to grow their roots on any soil.

Blackberries, even Snyder, sometimes require to be laid down by turning the roots over and holding with a fork full of soil on the tops, by that method, better and tenderer sorts can also be grown.

Raspberries and strawberries seem to require little if any more attention than with us, and every farmer should have an abundance, but I apprehend the majority are contented without.

Resolutions were adopted to co-operate with the State Agricultural Society in holding farmer's institutes and in making exhibits at the state fairs, and there seems to be a movement on foot for permanently locating the meeting at Des Moines.

I wish to commend their manner of reporting on orchards by twelve directors for as many districts, as far more comprehensive than our committee on orchards, etc. But instead of twelve districts by numbers, I would suggest nine—central, south-central, south-west, south-east, etc., which could be further sub-divided if desired, and their location readily recognized, whereas numbers signify nothing and are hard to remember.

The generous recognition and complimentary membership I received, as the humble representative of our State Horticultural Society, and uniform social courtesies and hospitalities, made my visit exceedingly pleasant and enjoyable, and I will be anxious to visit them again when practicable.

KIRKSVILLE, Mo., January 24th, 1887.

THE SEVENTH ANNUAL MEETING OF THE AMERICAN HORTICULTURAL SOCIETY.

HELD AT CLEVELAND, O., SEPT. 7, 8, 9 AND 10.

[From the American Horticulturist.]

It was a body of very substantial appearing gentlemen that met in the Board of Trade rooms, Tuesday, Sept. 7, in the city of Cleveland, at the seventh annual meeting of the American Horticultural Society. This society is an outgrowth of the Mississippi Valley Horticultural Society that was organized seven years ago by the leading fruit and flower growers and scientists of twenty States. Last year the name was changed, and the society became national, including in its membership leading citizens of every State in the Union and Canada, and for the first time a northern city was chosen as the place of meeting this year. They were men of all ages, and a larger number of middle or old age, with the evidences of health which nature gives those who commune much with her. They looked independent and well-to-do. Several ladies were present, and delegates were there from all parts of the Union. One delegate from Japan was also in attendance.

A paper was read from Mr. George Husmann, of Napa, Cal., on the past, present and future of grape culture in California.

Mr. Husmann stated that in the infancy of the business, grapes were grown in the valley, while now vineyards look down from the mountains, being less susceptible there to the frost. The writer mentioned the cosmopolitan state of the grape growing population, England, France, Germany and other European countries having furnished young and energetic grape growers. The wines of California are now competing with the best wines of the world, the brandies vie with French cognac, and the raisins with London layers. The wine yield this year will reach 20,000,000 gallons. With grape land at \$50 to \$100 an acre, and with an outlay of \$100 more per acre on the land, the grapes, five tons to the acre, at \$20 or even \$15 a ton, makes the business profitable.

DISCUSSING GRAPE CULTURE.

At the conclusion of the reading of the paper an interesting discussion on grape culture was entered upon by the members of the society. Mr. C. A. Green, of New York, thought the paper solved the problem of how California grape growers could compete with eastern growers. It was by employing cheap Chinese labor, and against this even high freights could not protect eastern growers. Mr. Cushman, of Ohio, invited the society to visit his vineyard and see what Ohio grapes were like and how they were cultured. He thought he could satisfy all that Buckeye soil was fruitful. Mr. F. C. Miller, in speaking of different varieties of the grapes, said he was of the opinion that the Worden, a seedling of the Concord, was much superior to the old favorite. He had tried the Worden for the first time this year and was much pleased with the result. His grapes were not fully ripened, and he had heard that the Wordens did not hold well to the stems. He did not know how true this was, and asked for information. Mr. Hubbard, of New York, said that he had been traveling for some weeks among eastern vineyards, and his examinations had been very favorable to the Worden grape. All reports he had received had been to the effect that the Worden clung to the stem. Mr. Hubbard said he had visited Mr. Worden's vineyard in Oswego, N. Y., and had seen the original vine that Mr. Worden said had yielded one hundred and ten pounds of grapes during each of the past three years. The crops this year were the finest the speaker had ever seen, and there was no rot. The Concord was not as heavy as last year, but the Delaware and other grades were doing well. The season was early and the consumption promised to be large. The Worden, Mr. Hubbard said, was a larger, handsomer and more attractive berry than the Concord and ripened from a week to ten days earlier. Purchasers tasting it would call it a first-class Concord. Mr. Hollister, of Missouri, reported that the grape crop in his State was very short this year and the fruit had rotted badly. He deprecated growers who raised early grapes and sold them before they were ripe so as to get high prices for poor fruit. Mr. Albough, of Dayton, in speaking of grape culture, said that a gentleman in Montgomery county, Ohio, had sown oats between the rows of vines and in this manner had preserved the grapes from rotting. Mr. McKay, the president of the Mississippi Horticultural Society, in response to a call said that fruit-raising in that State was a new industry. Grapes had not done well this year. The Concord had done the best, had

been safer, and had realized more than any other variety. Some growers like the Ives grape, but it was the general opinion that between the 30th and 35th degrees of latitude the Concord thrived the best. The Scuppernong was a grape that never failed, but was not a good fruit for the market. He thought the rot this year was caused by excessive rain; thirty days of constant showers had ruined a promising crop. He thought that the people of his State should attend to the drainage of the land, as it was a blue clay soil. Professor McKay, of the Mississippi Agricultural College, also thought rain had been the cause of the rot in his State, although in some parts the Delaware succeeded well. He was of the opinion that trimming helped the fruit, the berry growing larger and giving a better color. Mr. Miller said he had accidentally discovered that sulphate of iron was a good rot preventive.

Mr. Lindley, of North Carolina, in speaking of his State said: "Grape culture is materially increasing in our State. The State is divided into three sections. The eastern section is the home of the Scuppernong, and sometimes one vine covers three acres of ground. In the middle section we grow about seventy-five varieties of bunch grapes, and I think we grow the finest grapes in the country. Our best paying fruits are the Ives and Champion. The Worden we call the best black grape."

Mr. Van Deman, of Kansas, said that the grape crop in his State was very good this year. The speaker had been through Texas and Arkansas, and had seen some fine grapes under cultivation that seemed to stand the drouth finely, and all the common varieties were thriving. "Mr. Munson, of Texas," said he, "is doing a noble work by sowing the seeds of wildlings, and after raising seedlings crossing them with the choicest varieties of cultivated grapes. Some of the wildlings are fine grapes, the bunches being a foot in length. This is the first attempt to infuse the blood of these wildlings into domestic grapes, and the process is only in the first generation. Mr. Munson has some of the finest, brightest colored grapes I have seen, which he calls 'old gold.'" President Earle paid a glowing tribute to Mr. Munson, who has done much in the development of fruit culture. Mr. George W. Campbell, of Ohio, said: "Central Ohio is not an extensive grape-growing country, but we have many amateur growers. This year is the best since 1849. The grapes of both early and late varieties are ripening near together. The Tolman grape I regard as an abomination, but some people like it because it colors early, and is sent to the market so that the grower can get good prices. I was one of the first in Ohio

to raise the Worden grape. It is larger than the Concord, juicer, and ripens earlier than the Concord, but it has all the faults of that popular grape, the skin being tender, thus making it a poor shipping grape." Mr. Carpenter, of Ohio, spoke of high culture, and said he believed that it helped produce better fruit and prevented rot. Mr. Tamari, one of the Japanese Commissioners to the New Orleans Exposition, gave an interesting account of grape culture in Japan.

Mr. C. A. Green, of Rochester, read an interesting paper on the sensibility of plants. He argued that the fact that they have sexual characteristics is an indication that they are not like the rocks, without sensibility. He said that a grape vine will reach out eagerly for another vine, but never for branches of its own growth, and that the roots of a vine will shoot out toward a well, or a bone, or a manure pile, like a dog going to its dinner. The blackberry has been crossed with the raspberry, thus producing a pomological mule. Mr. Van Deman said that the peach and plum have also been crossed, and he gave the resultant mule the same hard reputation that the mule of the animal kingdom possesses.

SECOND DAY'S SESSION.

The American Horticultural Society began the second day's session at the Tabernacle Wednesday morning. The change from the Board of Trade rooms was made because the headquarters of Tuesday were found to be too noisy for the successful transaction of the business of the association. The change delayed the opening of the session, and it was 11 o'clock before President Earle called the convention to order. The paper read at the morning meeting took the protection of crops in time of drouth as a subject, and was presented by Mr. John M. Smith, of Green Bay, Wis., President of the Wisconsin Horticultural Society. In his address Mr. Smith said: "When God placed man upon the earth he gave him hands with which to work and brains to direct his hands. We may justly congratulate our civilization on its

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remarkable progress in horticulture. We have learned some lessons, but not enough to counteract the effects of serious drouths. We are too apt to leave our crops in the hands of Providence. This is not reasonable nor just. The soil is a matter of much importance. I prefer a dark loam with a clay subsoil. The first thing necessary is thorough drainage. My garden has a slight slope, and is arranged in beds with alleys between them that carry off the surplus water. There is a tile water course below the alleys to carry off the water that soaks through the soil. This keeps the roots in good condition through the season, and will give the plant a chance to grow deep in the soil. We have just passed through a severe drouth in Wisconsin, with only two light showers in June. My cabbages ran from eighteen inches to two feet below the ground's surface. I have never before seen them go to that depth, but it kept the plants in good condition. Manure is another important adjunct. I believe wood ashes to be a good fertilizer. I generally put on from thirty to forty wagon loads to the acre. In dry weather I give extra cultivation. Loose, mellow soil acts as a mulch to the soil beneath, and keeps the ground damp. I have been surprised to see what little sprinklings will accomplish. What is the result of following up this system? I had two acres of strawberries this year, which were planted in May, 1885. The land has been manured for the past six or seven years. This spring I put on wood ashes and cultivated the ground two or three times. The land was watered some, but when not watered at all the fruit thrived best. The picking season was hotter than for years, yet with this hot season, the drouth, and the remarkable selling prices of berries, I realized over \$200 from my strawberry patch. In my potato patch I placed ashes on part of the beds and manure from the compost heap upon the other. To my surprise I found that the best crops came from the beds on which I had put the wood ashes. My cabbages are the delight of the city. The land had been heavily manured, and this year I put 100 bushels of ashes to the acre upon it. So accustomed to success are we, that we speak confidently of the extent of our crops. I will not say that we can make ourselves independent of rain, but I hold that we may carry crops through a moderately dry season. When one is so situated that he can water artificially, it is a fine thing.

I have erected water works on my place, and find it pays to irrigate. To merely sprinkle the ground is a drainage, rather than a benefit. A light watering forms a solid, hard crust that sheds the water. I am not speaking theoretically, but from proven facts. If you water at all, do it well. No artificial water is as good as rain from the

clouds. My waterworks cost \$1,000, and have paid for themselves several times. If from what I have said some will follow my advice they will find it more profitable, more beneficial than anything they can do." Mr. Ohmer, of Montgomery county, Ohio, said that he wished to emphasize the importance of discussion on the droughts, and he related his experience in raising good crops of blackberries in dry weather, realizing \$1,000 on a four acre patch. In reply to questions Mr. Smith said he commenced under-draining twenty-five years ago and it never failed to work well. He had always fertilized and cultivated well. If he had to leave off one of these aids in obtaining good crops he knew not which he would let go. He placed his tiles about three feet beneath the surface of the ground. The bottom of the alleys were from twelve to eighteen inches beneath the surface of the beds and two feet wide. In draining orchards, Mr. Smith said, he would place tiles half way between the rows of trees. A gentleman from South Carolina reported that he drainage had increased Sea Island cotton crops in his State very materially, and he was assured that it was a benefit to any kind of crops. Mr. C. A. Green, of New York, spoke of mulch made by cultivation as being of great benefit to the crops, and wood ashes used in his State were plowed under the soil without perceptible effect. In reply to a question from Dr. McKay, Mr. Smith said that the cost of tiling to him was \$15 per acre. Mr. Harrison, of Painesville, O., said that he put in about seventy acres of tile this spring at a cost of \$15 per acre. He put the tiles in two rods apart, using about eighty rods of tile to the acre. Professor Claypole, of Akron, said that the carbonate of potash in the ashes absorbed much moisture from the atmosphere, and would hold this moisture despite the great heat of the sun. Mr. Smith said he used both bleached and dry ashes on his farm indiscriminately. Mr. Caywood, of New York, advised that small tiles be used, on the principle that the smaller the drainage the better it will be for the grounds. Prof. McKay said he wished to emphasize one feature of drainage that was overlooked. He thought drainage was a big thing in rainy weather, and the wet weather of his State had testified to this during the past summer. The wet weather was succeeded by a dry month, and the tile-drained land did as well in the latter season as during the wet period. Dr. Townsend, professor of agriculture in the Ohio State University, was of the opinion that the smaller the tile, if it will carry the water, the better. His farm was drained with two-inch tile, with larger ones to drain off all the water collected in the smaller drains. Willow trees plugged up drains very effectually. Peach trees were bad for plugging up drains, but

apple trees seldom stopped up the tiles. Professor Townsend said he had proved, by experience, that barley on drainage land produced twice the crop as on other land. The tilage had cost him \$22.50 per acre.

THE EXHIBITION AT THE TABERNACLE.

The exhibition in connection with the Horticultural Society convention opened Wednesday noon and attracted hundreds of visitors during the day. The plants, flowers and fruits placed on long tables in the old tabernacle took away much of the gloom of the large hall and transformed it into a beautiful retreat. Messrs. Kendall and Roberts, who arranged the exhibit, did themselves proud. Strings of evergreen were festooned along the walls and balconies, and the large stage was transformed into a conservatory filled with hot house plants. Nearly 200 exhibits were received at noon, and during the afternoon many more were placed in the hall. Upon the stage Edwin Geering, the gardener for Mr. J. H. Wade, had filled the center with fifty varieties of plants that had been gathered from all corners of the earth, many of them being very rare. David Charlesworth, the Sibley street florist, also exhibited fifty plants and choice ferns of the finest kind in competition with Mr. Wade's contribution. In floral designs there were two entries. Mrs. Ella Grant Campbell, of the Jennings avenue greenhouses, showed a dainty white parasol of carnations with a lining of bright scarlet Lady Emmas. The exterior was decorated with a drapery of La France roses, and auratum and candidum lilies softened by a spray of delicate ferns. The whole was supported by a stand of tropical ferns. The other entry was by J. M. Gasser, of No. 71 Euclid avenue, who exhibited a large fish made of vineas, lying upon a huge platter of white carnations. The green fish and white platter were relieved by a spray of choice roses, the whole being a work of art. Mrs. Campbell had a fine exhibit in the department of cut flowers, showing a lot of pansies, rare varieties of the annual phlox and one hundred other choice plants and flowers. Peter Harkey, of Holmden avenue, had an exhibition of all classes of astors and geraniums. Thorpe, the New York florist, had a collection of about seventy-five varieties of gladiolas, which were in competition with gladiolas entered by Mr. Sked of Cleveland.

NUT BEARING TREES.

BY J. T. LOVETT, LITTLE SILVER, N. J.

In concluding the reading of the paper Mr. Earle said that the subject was one of great importance. The nut-bearing trees were fast disappearing, and this was especially true as regards the pecan, which in the South was a paying investment. An interesting discussion upon nut trees, followed the reading of the paper. Mr. Van Deman, of Kansas, said that the English walnut was a failure in the West, and Mr. Lindley and others testified to the profitable investments of planters in the South, in his section the nut paying 300 per cent profit annually upon the cost of culture and value of land taken up by the tree. Mr. Albaugh said that the question of nut-growing trees was quite important in Ohio, as pecan, hickory and chestnut trees flourish in this State. "The chestnut—not the one the bell rings for—but the sweet American chestnut, grows well in Miami county," said Mr. Albaugh, "and in the spring the blossoms cover the foliage, but when the burr comes and ripens there are no nuts to crack, the burr seems blasted, and the nut is not inside. I would like to know if we can raise chestnuts in Ohio." Professor Claypool thought the question an important one, but a dangerous one as well. The Spanish chestnuts and English walnuts in the experiments made did not seem able to stand the winters of the North. The filbert he knew nothing of, but would like to ascertain if the nut-worms would destroy the fruit. The chestnut did not freely fruit except upon a sandstone or shale soil, and this he thought the reason for its non-fruiting in certain parts of Ohio. Hickory nuts, he thought, were the kernels for Americans to make money from, if they could trim down the shell and enlarge the kernel without losing its sweetness, so as to make it complete with the imported nuts of Europe.

Mr. Williams, of Lake county, Ohio, said that he had some experience in nut culture, and found that the soil had much to do with the growth of trees. He had trees forty years old, and did not believe that butternuts would grow in northern Ohio, while walnuts would flourish in this part of the State. One of his neighbors sold many bushels every year, realizing good profits. Mr. Hollister lamented the vandalism of nut gatherers who were in the habit of felling trees in

order to get at the nuts. Along the Mississippi river the nut trees had suffered much from this cause, but the people of the West were planting groves of nut trees in many places.

“Small fruit in New England,” was the title of a paper read by J. H. Hale, of South Glastonbury, Conn. In the course of the address Mr. Hale said: “In New England we have many hilly slopes and sharp corners to keep clean, yet I think we are producing and eating more fruit than in any other section of our country. A big plantation with us would be a ten-acre field. It costs \$1.50 an acre to raise strawberries. In the \$50 paid for fertilizing, I pay \$35 for ground bone-dust and \$15 for potash salts, which I regard as the best of manure. Raspberries, gooseberries and currants cost us \$75 an acre to produce. Strawberries are grown in valleys, while raspberries are grown in small hedge-rows three and one-half feet apart. Blackberries are not planted to any extent for the market, yet the owner of one acre of blackberries tells me that the sale of berries paid for 560 bushels of corn last year. One hundred acres would be a liberal estimate for all the currants cultivated in New England. Gooseberries and grapes are grown only in limited quantities, yet tons upon tons of these fruits are brought in from New York State every fall. In selling the small fruits, the American square measures are used, fruits being sent out in white, clean baskets. Within the last few years a number of us have used a new crate that will give us more space and keep the fruits fresher and better than when sold in the small rough crates, such as are found in the West. We sell our fruits from our own wagons to consumers and retailers, thus securing better prices than sent by railways to the large cities. Poor men often buy six or seven quarts of berries to the millionaire’s two quarts, and when we have no more saloons it will be a millennium for the small-fruit growers. As to varieties, that question, like the tariff, is a local issue, and the less said about it, the better. Half the strawberries grown in New England are Crescents, and the other half are standard berries. The cherry currant has chiefly been grown for the market. The Downing gooseberry is grown also for the market. The lucretia dewberry is proving to be all its Ohio friends promised. The Worden grape is growing in favor each year. For family use all but very late ripening fruits are grown in perfection. We are making all the use we can of these staple luxuries that are becoming so popular for summer foods. If we can scatter horticultural seeds in the minds of the people we shall have brighter homes, and this society will have done a great and noble work. The president announced that in the discussion following the reading of the paper on small

fruits, strawberries would be first taken up, and Mr. C. A. Green, obtaining the floor, spoke upon the new varieties of that fruit. "It was true," he said, "that it took hundreds of years to raise the strawberry, and now, in a lifetime, more had been done than in centuries before in cultivating that fruit." Mr. Albaugh said that in Barnesville, O., a few years ago the residents stopped cultivating tobacco, and now grew strawberries on the hill method. The runners were systematically cut off, and it was claimed that the Sharpless was the best market berry to raise. "They make an effort," said the speaker, "to never ship a bad berry from their place, and endeavor to get as big strawberries at the bottom of the basket as at the top." Mr. Albaugh spoke of the Ohio strawberries that were as large as hen's eggs, and that when any man tried to beat the strawberries raised in Barnesville, O., he would have to get up early and hustle. The people of Barnesville show what can be accomplished where an effort is made, and the Ohio people are proud of the cultivators on the hills of a town where wheat cannot be raised. Mr. McKay, of Mississippi, said that for a long while in that State it was thought they could grow nothing but Wilson's Albany strawberry but of late they had changed their minds. In the southern soil it was common to lose plants rather than grow them, by spreading, especially after an open winter. The Wilson did not give live runners but once in three years. The Cumberland Triumph was the best berry raised in the South. The Southern raisers cultivated berries for the North, and their methods of cultivation were necessarily different from what they would be if local markets were supplied. President Earle said that he had shipped long distances, with great success, many of the most delicate varieties of berries. The discussion had not concluded when a recess was taken for supper, and it was decided to take up the subject of other small fruits at the evening session.

The small fruit discussion was reopened by Mr. Mathew Crawford, of Cuyahoga Falls, O., who related some of his experiences in growing strawberries. Prof. Green, of the Agricultural experiment station at Columbus, O., described a number of new varieties of strawberries. The Jewel, he thought, was not a vigorous plant, but the fruit was all right. The Summit and Buback varieties were new and promising, The Jessie was also very vigorous and healthy, and the fruit large, good in color, and of excellent flavor. The May King was very promising and ripened about the same season as did the Crescent. Covill's early berry ripened earlier than the Crescent, but the fruit was small, rather too small for the markets. The Ontario plants were vigorous,

the fruit large and of good quality, but the Professor was in doubt regarding its fruitfulness. Mr. Smith, of Wisconsin, said that the State Society of Wisconsin had examined the Jessie and the members were very enthusiastic in praise of the new fruit. The plants run well and the berries are large. Some of the berries were from seven to nine inches in circumference and Mr. Smith was sure that, if they did as well upon foreign soil as upon native ground, they would prove a popular fruit. Mr. Crawford said that he had cultivated the Jessie for two years, and was assured that it was the best berry in the market. Mr. Albaugh spoke of a new Ohio strawberry called the Western Union. The foliage was large, strong, and very heavy, and the fruit was about the size of the Cumberland Triumph.

President Earle asked for information concerning the tarnished plant bug, an insect which feeds upon vegetation, and was ruining the strawberries of Illinois. This bright green bug sucks the juice from the berries, and in some years has destroyed from one-half to three-quarters of the crop. Mr. Earle asked if there was a remedy against the encroachments of the insect. Mr. Wood, of Akron, O., reported that the same bug had attacked the currant bushes in this State. Mr. Smith, of Wisconsin, said that in early years insects and bugs had ruined his strawberries, but during the past fifteen years he put the berry plants on cultivated ground where bugs could not live, and after picking the first crop he turned the plants under the surface. This plan has succeeded well, and in the years he did not act in this manner he was bothered with insects. Mr. Myrick said that in Massachusetts it was customary to dip the roots of plants into a weak solution of potash, and this killed the bugs. The subject of currants was taken up, and the Fay and cherry currants were highly praised. Mr. Albaugh said his brother in Covington, O., was the originator of the Lucretia Dewberry, the best blackberry in the market. Mr. Caywood said the Lucretia was a wonder, the finest berry in the world, larger, earlier, and yielding greater crops than any other. Mr. Crawford had ascertained that the Lucretia grew from root-cutting, although without sending up suckers when the roots were not cut. Mr. Crawford had raised vines that ran along the ground for eighteen feet. Mr. Van Deman described a new blackberry hailing from Dallas, Texas, that was very popular, and was the finest of the blackberry species growing in that State. Mr. Van Deman thought the Dallas berry was a cross between the black and dewberry. Mr. Caywood said he had originated a new berry, its hardiness being equal to the Snyder, and it was as large as the largest

of berries. He would like the experts to examine it, as he claimed there was no other blackberry that would equal it. The Minniewaski was the name given the new berry. Mr. Green, of New York, said he had examined the Minniewaski berry, and was much pleased with it.

THIRD DAY'S SESSION.

The American Horticulturists elected officers and transacted considerable business Thursday morning, the third day's session. A paper was also read and discussed before the noon recess.

The nominating committee recommended that the time of the next meeting should be February, 1888, and some point in California the place, provided suitable rates from the railroads could be secured. It was decided to discuss the location at a future session, and Mr. Campbell then presented the following report of the committee on the president's annual address :

There were several points in the president's address which the committee deem of special importance, and worthy of extended notice, and perhaps of further discussion by the society. These points are as follows :

First—The establishment of a bureau of pomology in connection with the Department of Agriculture at Washington.

Second—The creation of a commission of pomological experts to investigate the fruits and culture of foreign countries, especially the interior region of Europe and Asia, with the view of obtaining valuable products suited to the wants of this country.

Third—The endowment of experimental stations in connection with the agricultural colleges of the country.

Fourth—To call the attention of our people and their legislators to the overshadowing importance of some practical methods by which the cultivation of our remaining fruits may be attained and their destruction prevented, as well as to the needs of common systems of planting for the future.

Fifth—The devising of some practical method for the better and more equal distribution of fruit crops to all parts of the country.

The committee, after consultation, decided that the important and valuable suggestions of the address would render desirable the publication of the paper in pamphlet form for general distribution, to be sent to the leading agricultural papers of the country, and to such persons as might be benefited and instructed thereby, thus increasing interest in the society and its work. The report gives a plan for raising publication money. The report of the committee was adopted, and two thousand copies of the president's address were ordered published.

"THE PRESS AND HORTICULTURE"

was the title of a paper read by Mr. Herbert Myrick, of Massachusetts, who said: "The press has done much to encourage the fruit-growing for the home, but it has done little toward telling how to sell fruit. The space between the producer and the consumer is too wide. The fruit-grower wants the press to aid him in co-operative selling. The press may also be used to discover new markets in this and other countries. Reports of fruit crops have been generally neglected, but these reports should be looked after. The reports should cover the whole country. If the press had done its whole duty toward horticulture, Congress ere this would have passed the Hatch experimental station bill, which appropriated \$15,000 to every State Agricultural College for the founding of the stations. The press and farmers have been very silent regarding the passage of this bill. Many papers refuse to notice new fruits and patented inventions for fear of advertising some one. The subscriber wants his journal to describe new fruits before the news is stale. The dealers and nurserymen's papers are good, although they are generally advertisements for the proprietors. The horticulturists should write for the press. These writers are few. Men who have never written for the press sometimes send the best of news founded upon experience. Local horticulturists should keep local papers informed of their proceedings."

At the opening of the afternoon session Professor Lazenby, of the Ohio State University, delivered an address on the comparative growth of trees, illustrating his lecture with specimens from the experimental station. "Our State is divided into four agricultural divisions," said Professor Lazenby, "one the grass and grain growing section, another small fruits, the third vegetables, and the fourth trees. There are few States where the area of forest is so small in comparison with the tilled land as in Ohio. I desire this afternoon to discuss the comparative growth of trees. I have made experiments with a number of common

trees. The seeds were sown in the spring of 1881. Our locust and catalpa trees are fast growers and make good wood to cultivate for profit. For fence posts and like use the locust is much superior to the catalpa. I think that for profit the ash is one of the most promising and most thrifty trees. The rows of ash trees grew with great regularity and stood crowding better than any other tree we have cultivated. There is great demand for young ash as well as old ash. The soft or red maple grows more rapidly than the sugar maple, but I notice that the sugar maple grew well the third year. On the bottom lands of Ohio the chestnut will not grow naturally and hence cannot be raised for profit. Our soil does not take kindly to it and our chestnut trees are dwarfed. I believe that the time has come for us to give more time to the culture of trees. I urge this upon the ground that timber culture pays. I do not think that we should gain much by calling for forests on account of the climate. Cultivate for the money that is in the timber, and if the forests help the climate so much the better. If you have land you don't cultivate, utilize it for timber. Plant seeds in the winter and let healthy young trees take the place of unprofitable timber, that should be cut from the woodland. We should also make it a law never to allow stock to enter woodland for pasturage. We should also guard, with more care, against fires. The loss by fire is not in the timber destroyed alone, but it unfits to a degree the land for the growth of trees in the future.

Mr. Cushman asked if it would not be well to memorialize State legislatures asking that some effective inducements be offered by the States to stop the ravages of fire in forests, and for the preservation of woodland, such as giving exemption of taxes for timbered land.

Several hundred people visited the exhibition during the supper recess last evening, and the large crowd did not diminish in number when the president rapped for order. Professor McKay, of Mississippi, opened the session with a talk on agricultural colleges of the south. In the course of his remarks Mr. McKay said: "Until within a few years it was thought that nothing could be raised in Mississippi. Cotton was king. Since the war a few have gone into the cultivation of fruits and vegetables, and by the side of the cotton gin we see fields of grain, large herds of stock and fine gardens. Horticulture is still in its infancy, but already we see berries going from Mississippi by the ear load, and peaches, apples and vegetables are all doing well in our State. Our interests are increasing rapidly and the railroads offer us every facility. We are working on a system that gives us cheap boxes for shipping and fast trains. Our college is in the eastern part of the

State. Our college farm has nearly 2,000 acres of land. We have a laboratory. We have a fine herd of blooded stock on the farm and are now on a firm footing. We give students the best of school educations outside of languages, and give them every advantage to become agriculturists and horticulturists. We hold that it requires as much education to become a farmer as a member of the learned professions. Every horticulturist should understand the sciences that have to do with his work. We believe we are doing a good work. Our students are interested, and the State is interested in our work. The first year our college was full, and the attendance is still good and increasing. Our instruction, we think, is as good as in any scientific institution of the country. We had four hundred students registered last year, but the capacity is 350. A number of students are twenty-five years of age. The college is co-educational, ladies being admitted. The pupils are obliged to work a number of hours per day, and they are paid eight cents per hour, this money being deducted from their board bills. Last year many of the students paid their entire expenses."

Dr. Samuel Hape, of Georgia, presented a paper on "Horticulture in the mountain regions of the south." President Earle read the paper, a synopsis of which is as follows: "We have three regions for fruit raising in the south—coast, middle and mountain. The differences in small fruits in the three regions are very striking. In the apples of Georgia we have only five varieties that are common in the three regions; of peaches, two; of pears, four; of plums and grapes, three. Some southern fruits, such as figs, do not grow on the mountains at all. The mountain winter apples are much superior to those of the other regions. This is an important fact in southern fruit growing, the northern producers hitherto finding markets for winter apples in the south. The mountains are less subject to heavy dews than the low lands, and the vine will grow better. Grape culture is a new industry, but growing. In peach culture it has been shown that certain elevations are comparatively free from frost, and situations for orchards are eagerly sought after. All have heard of a mystical belt or zone situated in the mountains that is free from frost and this belt all try to find. On the mountains sheltered lands at the base are protected from frosts. Favorable locations for orchards are found on mountain slopes in north Georgia and high hills in southern Georgia. The mountains of Georgia are particularly adapted to the cultivation of fruits, the one great drawback being the distance from railroads, but ere long we hope to have this difficulty overcome."

ANSWERING INTERESTING QUESTIONS.

The closing hour of the session was taken up in answering questions that had been handed the president during the day. The Brighton grape in the east was well spoken of, but in the Central States it had mildewed to some extent. In the west and northwest it was doing fairly well. The Duchess grape was doing well in the east and in Ohio. Mr. Green thought the vine a little tender. Ohio growers spoke of the Pocklington as the best white grape of recent introduction, though a slower grower and requiring rich soil. The Early Victor grape was not a victor in New York, and was called a poor grape. In Ohio it was not looked upon with favor. In Arkansas it was small, but early and sweet. The Jefferson grape lost its foliage about ripening time in Indiana, and was too late for New York.

The Wyoming Red was of ordinary quality, but grew in fine clusters in New York. It was liked in Ohio, where it was profitable, because early. It needed long pruning and wanted plenty of wood. The Virgin grapes lost their foliage in Ohio, a bad habit. Mr. Green said the Virgins were doing well in New York. Moore's early grape was not one of the best of early growers. The Centennial was a small grape, sweet in taste and a fair grower. Jessica was an early grape in Ohio, a good-sized berry in large clusters.

President Earle, in concluding the discussion, said that the only remedy known to him for protecting the fruit from rot was by bagging the grape. This plan had been pursued by the growers in southern Illinois, and it was the only method by which they could raise grapes for home use.

FRIDAY, THE FOURTH DAY.

The members of the American Horticultural Society were the guests of the Eastern Cuyahoga Horticultural Society, and were roy-

ally entertained in the village of Euclid, where the morning was spent in visiting the vineyards, and the afternoon in feasting. At 8 o'clock in the morning about seventy-five of the visitors went to Lake View Cemetery, where the tomb of Garfield and the monument were visited, and an hour spent in looking over the grounds. The 9:30 train on the Nickel Plate road had attached a special car for the delegates, and at 10 o'clock the car was boarded at the Euclid avenue station. At Dunham's crossing the passengers disembarked and found carriages in waiting to convey them through the suburban farms. The hill was climbed and in a few moments the guests stood in the midst of the trellised vines in the oldest vineyard in the State, the property of Mrs. M. E. Dunham. The north side and summit of the hill was completely covered with rows of grapevines, upon which hung tempting clusters of Concords, Delawares, Catawbas, Isabellas, Hartfords, Empire State, and other varieties of luscious fruit. The first vines were planted in the vineyard thirty-one years ago, and on these same stems fine clusters of Concord grapes still grow. From the summit of the hill a splendid view of the Euclid vineyards was obtained. Stretching from the north lay a level plain, dotted here and there with foliage until the land met the lake at Nottingham. For four miles to the east and two to the west the side hill and table lands seemed to be one vast garden of grapevines. There are nearly five thousand acres of vineyards in this vicinity. All admired the beauty of the scene, and it was with deep regret that the hilltop was deserted for a nearer view of the table land below. The second halt was made at the farm of Mr. O. F. Powers, where a new style of packing and a fruit house were examined and the Niagara grape vineyard visited. At Mr. H. Avery's place some fine varieties of the popular Catawba were found and the party then went to the farms of Mr. Grant Borce, Mr. H. Avery, Mrs. J. Haskell, Mr. Hunt and Mr. Harmes, and from his vineyards the delegates were escorted to the lawn of Mr. H. Bushnell, where a pretty scene greeted the eye. The home of Mr. Bushnell is on the Euclid road, the commodious brick farmhouse being set back about two hundred feet. The lawn is well shaded with a group of fine maples, and the driveways are bordered with beds of bright flowers that attest the artistic tastes of the inmates. Under these trees were four or five large tables covered with white cloths and heaped with every viand that deft fingers can make and fruitful vineyards grow. All Euclid had turned out to welcome the horticulturists and everybody was in holiday dress. Under a tree was stationed the Euclid Cornet Band in their neat uniform of blue and gold, and music enlivened the scene. The guests wasted no time in

finding seats at the tables where they were cared for by a number of the charming young ladies of the village. Dinner over, the seats were arranged before the door of the house and President Earle was escorted to the entrance and introduced as toast-master. After a few words of thanks for the reception the president introduced Rev. Mr. Webster, of Euclid, who related some of the history of the county society, and in its behalf welcomed the members of the American organization. The first toast read by the president was, "Horticulture—It is a good thing—good for the young as it keeps them busy, and good for the old folks, for they grow old handsomely." Mr. J. M. Smith, of Wisconsin, was called on for a response, and said: "I was afraid until about two minutes ago that I would not respond to this toast as I feared the good people of Euclid were trying to kill us by overfeeding. I wish to say right here that I had heard there were some large vineyards in Ohio, but had I known of these extensive farms in the vicinity of Cleveland I would not have attempted to enlighten them on grape culture. From the examination of your fruits I am prepared to maintain that the Buckeyes know how to farm, and it would be poor taste for me to address them upon agriculture. The toast says that horticulture keeps the young busy. It does. It makes a pleasant work for boys and girls. I know of no other occupation more ennobling, and so productive of good results. I have often wondered if a wicked man could be a horticulturist and go about his work without feeling out of place. I know of no profession so conducive to longevity as the study of horticulture. It is a refining study and the student cannot but become educated in the science."

Professor Lazenby, of Columbus, responded to the toast: "Horticulture as a profession as well as an art and as business." The professor said: "Horticulture is a fine art. This is especially true of the branch known as floriculture. As a business some object to horticulture on the ground that it does not pay. I believe it does pay. We speak of failures and think of untimely frosts, and rots, and nests, and mildew and bugs, and then realize that there are great risks to run in horticulture. But there are risks to run in other professions, and it takes years to climb to the top in any business. When Herbert Spencer was in this country he was asked what feature of American life he would criticise, and in reply said that in America life was for work and study when work and study should be for life. So it is that our work and study give us the pleasure that makes life worth living. Horticulturists deal with nature. We cannot sow figs for thistles and we must reap as we sow. Horticulture provides us a luxury by giving us

health. Let us look at horticulture as a science. I will illustrate my ideas by a wheel. The hub is the common school education from which the spokes spring out. The spokes are the sciences, and the rim that receives all the spokes is horticulture. It has something taken from every science and depends upon them all."

Mr. L. B. Pierce, of Tallmadge, O., was called upon to respond to the toast "Our American homes—we love the horticulture that makes them beautiful outside, and our wives, mothers and daughters who fill them with joy inside." In reply he said that he thought the sentiment expressed completely all that was worth saying. If the home was beautified both outside and in, there was nothing left to desire. "What can be more beautiful," asked Mr. Pierce, "than to see a home surrounded by green lanes, shady trees and bright flowers?"

Mr. A. C. Green, of Rochester, N. Y., editor of Green's Fruit Recorder, responded briefly to the toast, "The Press—It is like a great tree whose roots extend into all the relations of life; and whose branches, spreading wider and wider, shelter a free, happy and prosperous people."

In responding to the toast "Horticultural Societies—They can no more be run without a good secretary than a kite can fly without a long tail," Secretary Ragan thanked the press for the reports of the convention, and said the annual reports of the society would be largely made up of the newspaper accounts of the proceedings. "Horticulture at the south—it is aspiring like her mountains; it is widespread like her plains; its harvests are golden and sweet like her peaches and oranges," was responded to by Mr. Boggs, of North Carolina, who began his remarks by saying: "I have been greeted with bullets to-day, and was chased by the bullets of some boys from your section about twenty-five years ago. I believe I prefer the present kind of greeting." Mr. Boggs then said that horticulture in the south was in its infancy, but there was a bright future before it since the people had begun to divide labor. Mr. John Little, of Ontario, was called upon to reply to "The Dominion to the north of us—its vigorous climate makes a vigorous horticulture. We invite the fullest co-operation of our northern neighbors in our American society, which is as much theirs as our own." Mr. Little, in an eloquent speech full of feeling, spoke of the hospitable reception given him in this State, and proceeded to discuss the science, compared the horticultural beauties of the earth with Zion's Hill, where he hoped to meet all present, as they, he said, would never hear his voice again on this shore. "The ancient empire of Japan, she has sent us her fruits and her flowers, and now she is

sending us her horticulturists, whom we welcome," was the sentiment responded to at some length by Kizo Timari, of Japan. Mr. Cushman replied to the toast, "The Vineyards of Enclid—they look as healthy and handsome as their owners—may they feed their owners as sumptuously as their owners have fed us," in a modest manner, but with much humor. "The Department of Agriculture—we give all honor to its noble chief, and recognize his vigorous efforts to advance the cause of horticulture," was responded to by Mr. Van Deman, of Kansas, United States Pomologist. The last toast was fittingly replied to by Mr. W. N. Cook, of Michigan. The sentiment elicited storms of applause, and was as follows: "Among the sweetest blossoms of horticulture is hospitality, and the neighborhood of Enclid appear to be in full bloom."

The following resolutions were presented and adopted, after which the meeting adjourned:

Resolved, That we extend to the local committee and citizens of Cleveland, to the State Horticultural Society, and to the Eastern Cuyahoga Horticultural Society an acknowledgment of our appreciation of their efforts and of the successful management of the fruit exhibition, and for the liberal premiums awarded.

Resolved, That we thank the local press for the enterprise it has shown in publishing so fully the reports of our convention, and to the "American Horticulturist," and the horticultural press of the country, who were represented, for the interest taken in our meeting.

Resolved, That we also offer our thanks to the Board of Trade for the use of their rooms, to the Forest City House for reduced rates, to Mr. A. C. Kendall and E. H. Cushman and the good people of Enclid for their hospitable treatment.

Shortly after 5 o'clock the visitors left the grounds for the depot and returned to the city. A number of the delegates left for their homes that evening, but a few remained to visit points of interest in Cleveland, and the seventh annual meeting of the American Horticultural Society will long be remembered by those in attendance as a "red letter" day.

SECRETARY'S BUDGET.

Owing to the delay in getting our report out "Our Budget" will be omitted until next year.

L. A. GOODMAN,
Secretary.

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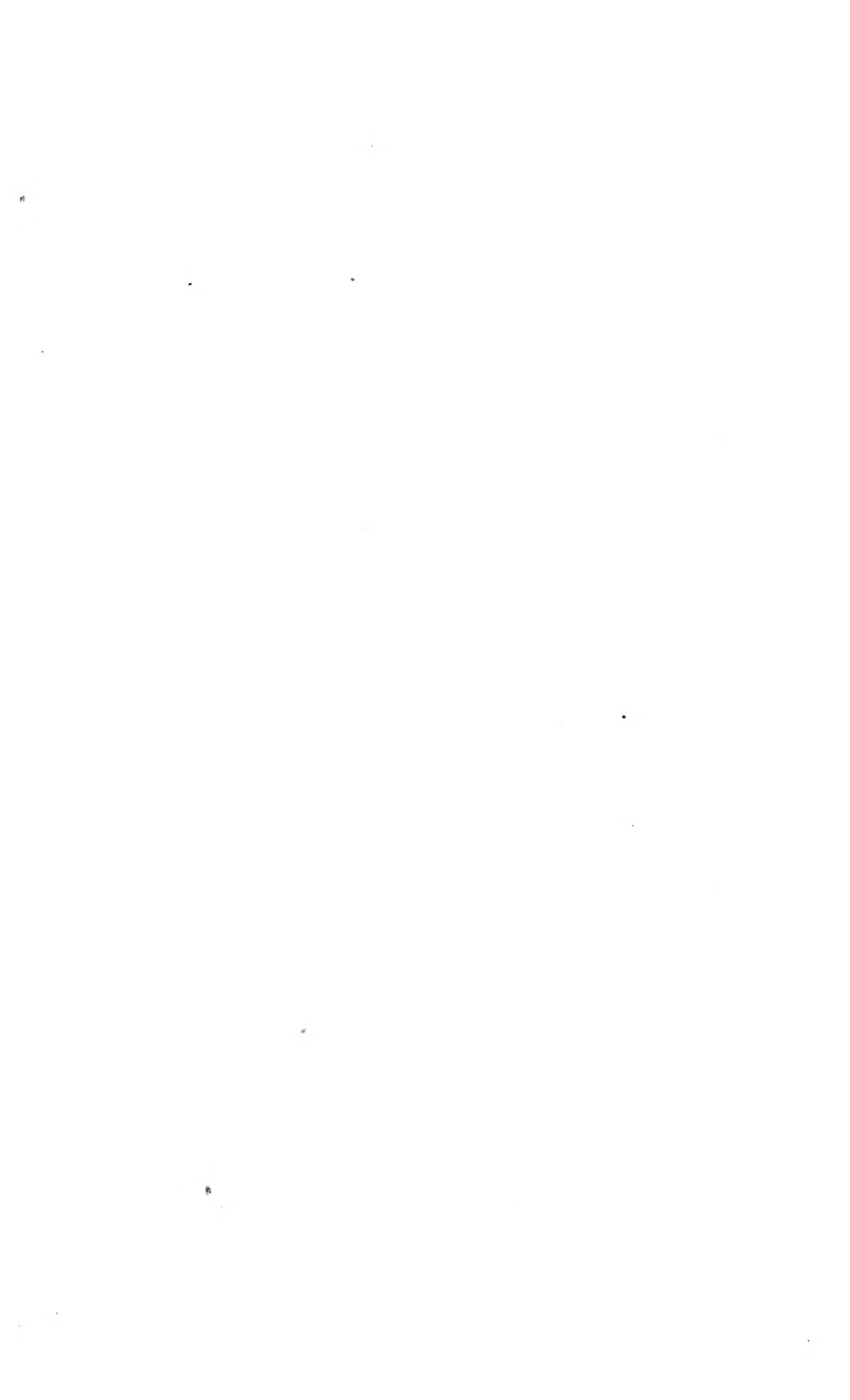
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